

Present state and prospects of demonstration activities in the fruit sector in Latvia, Lithuania and Poland

(WP2: Development of a conceptual framework for the establishment of demo-farms)



InnoFruit



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BSC | BALTIC STUDIES CENTRE

WP2: Development of a conceptual framework for the establishment of demo-farms

Activity 2.1

Analysis of SMEs for the
creation of the demo-
farm network

Output 2.1

SWOT analysis and
requirements for
demo farms

Activity leader: PP4

Latvian Fruit growers' association (LV)

Activity 2.2

Analysis of existing
knowledge transfer
practices in research
organisations

Output 2.2

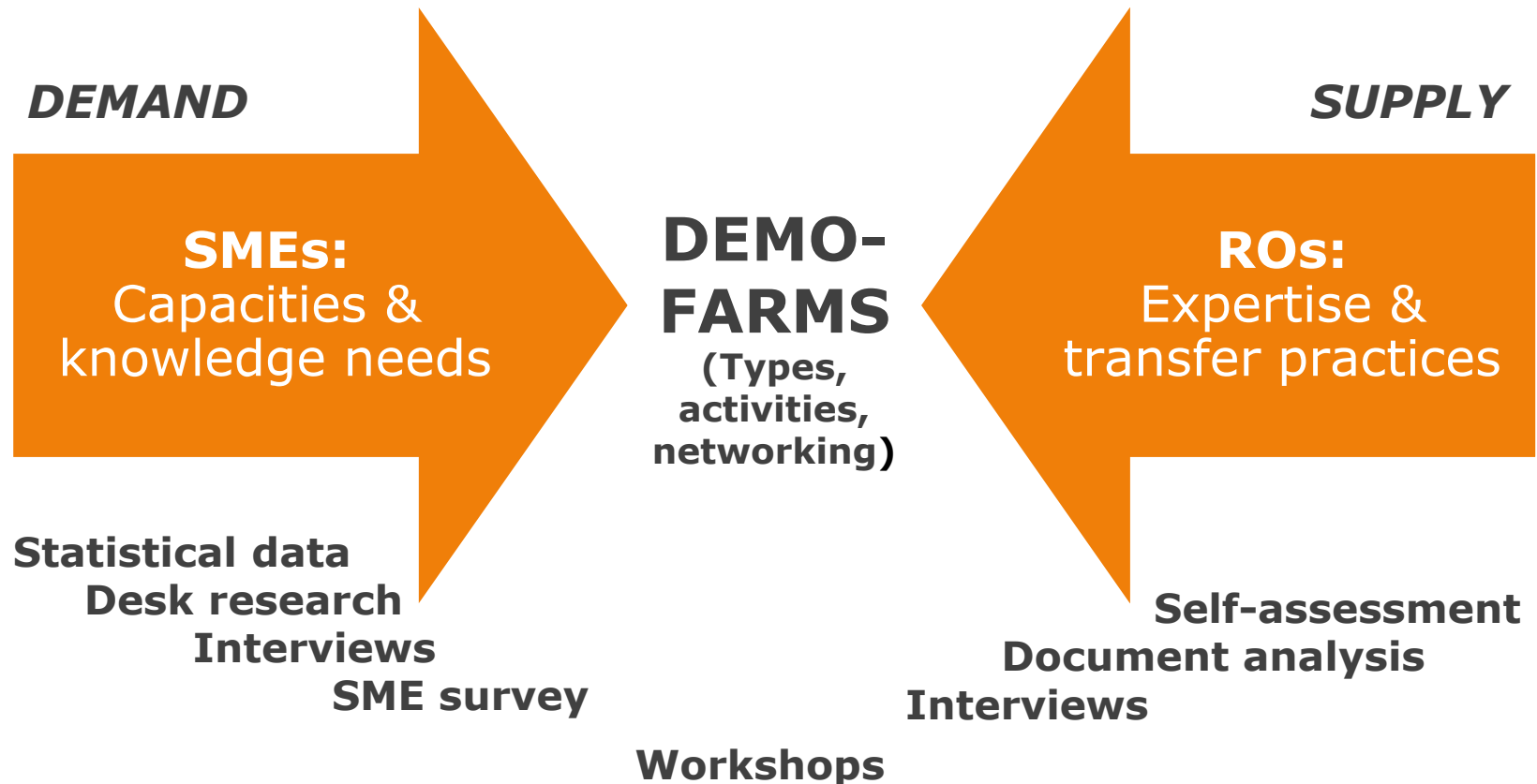
Study report on
innovation and
knowledge transfer

Activity leader: PP1

Institute of Horticulture (LV)

Activity synergies

Aim: To develop comprehensive understanding of the present profile and the future potential of demonstration activities



QUICK VIEW OF THE FRUIT SECTOR

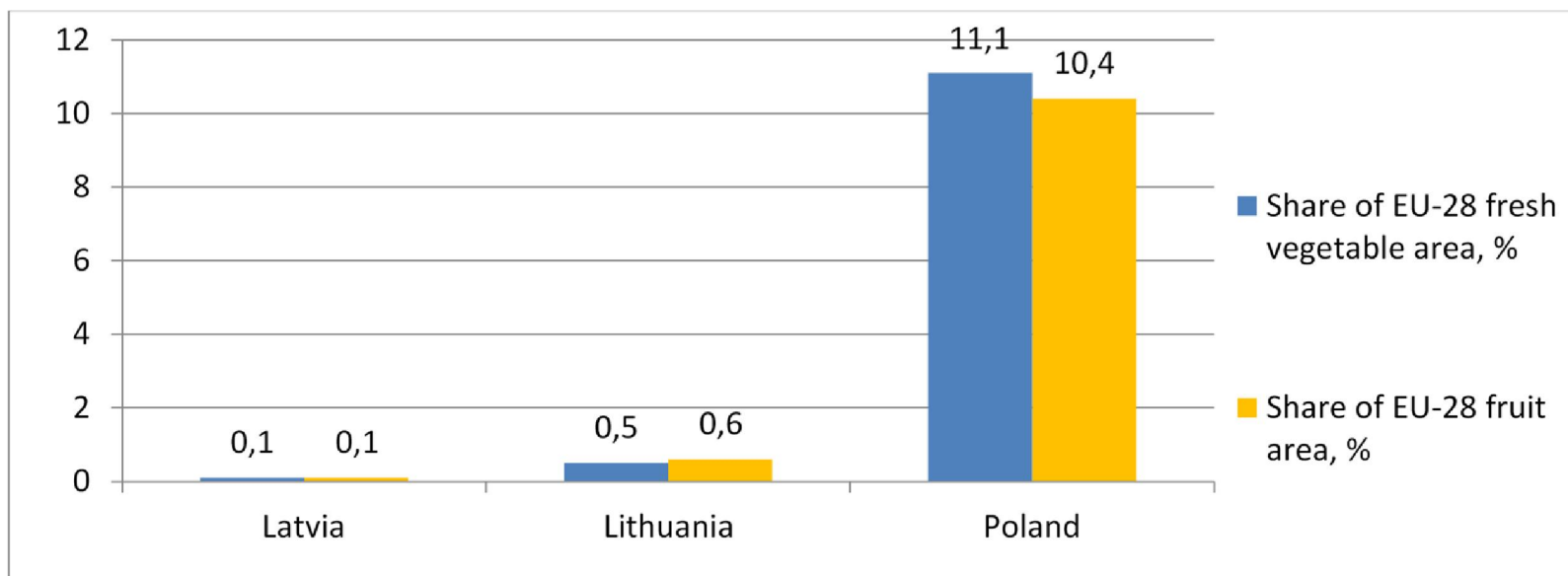
STUDIES ON FRUIT SECTOR

Publications on the socio-economic aspects of the fruit sector in Latvia, Lithuania and Poland (2006-2016)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
LV	2		1		1	2	2	3	1	1	1	14
LT	2		2	1							1	6
PL		1		3		2		3	6	14	3	32
Total	4	1	3	4	1	4	2	6	7	15	5	52

	Production capacity & efficiency	Policy & regulation	Producers' organisations & cooperation	Consumer demand	Economic relevance (import/export)	Knowledge transfer & innovation	Environment & health
LV	12	7	5	5	5	6	2
LT	6	3	4	1	0	0	0
PL	16	13	9	12	12	2	6
Total	34	23	18	18	17	8	8

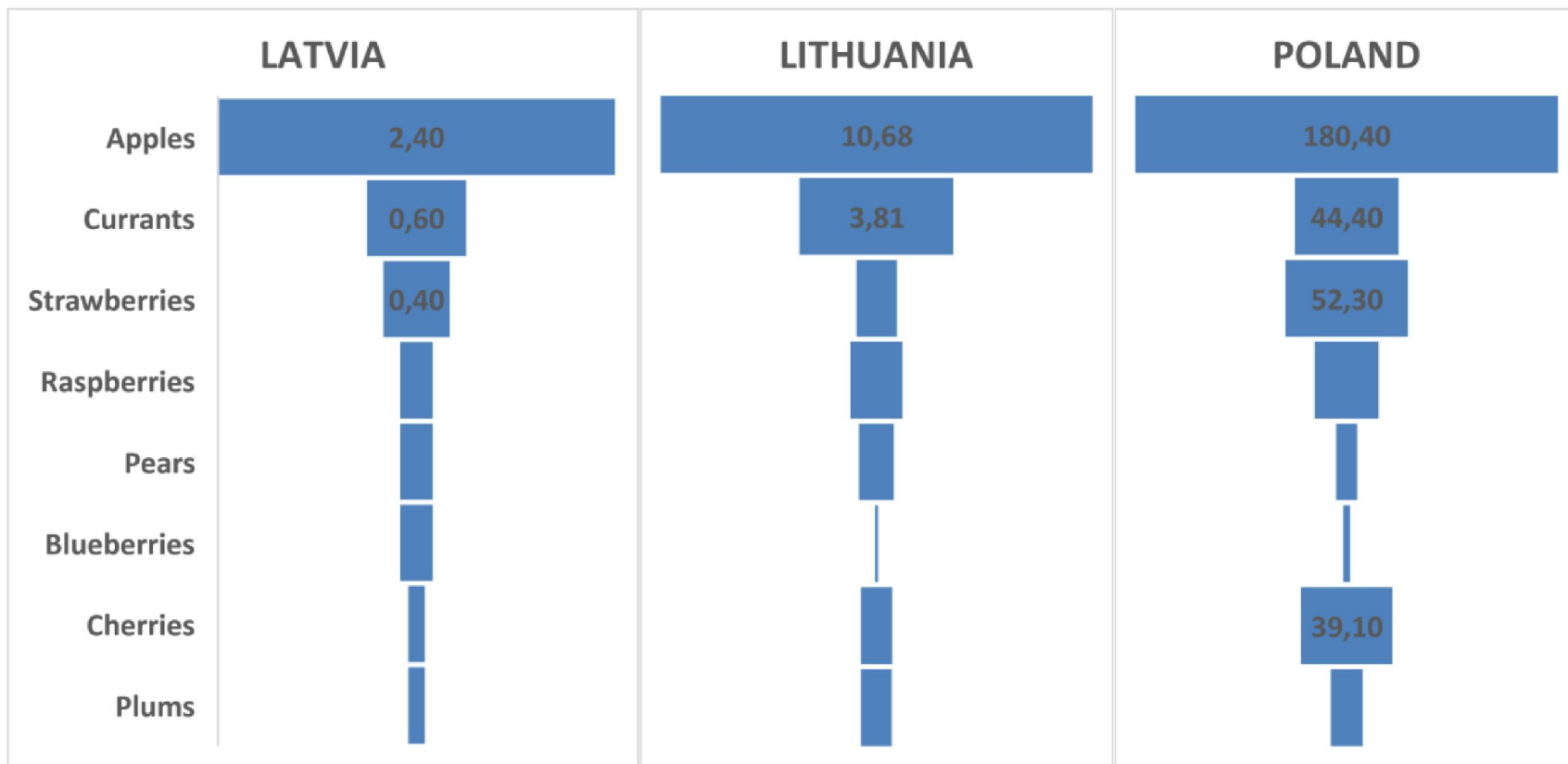
SECTORAL CHARACTERISTICS



Shares of fresh vegetable and fruit areas in EU-28, 2015.

Source: Based on De Cicco (2017).

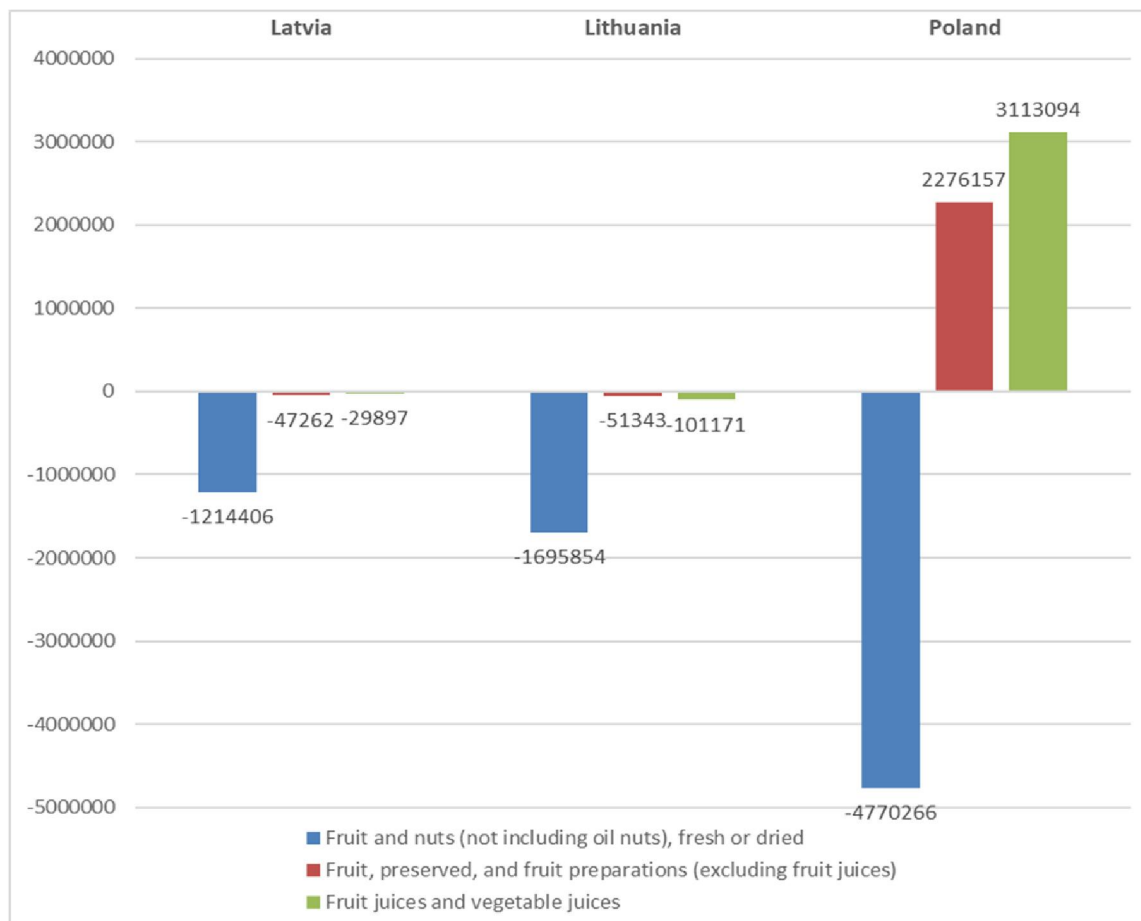
SECTORAL CHARACTERISTICS



Biggest harvested crops by harvested area (1000 ha), 2015.

Source: Eurostat.

SECTORAL CHARACTERISTICS



Trade balance of fruit (quantity in 100 kg), 2017.

Source: Eurostat.

SECTORAL CHARACTERISTICS

- Differences in the role played by the **fruit sector** in the national economies
- Common predominance of **small and medium-sized companies** in the sector
- Growing activity in the **processing** of fruit and berries
- Similar main **produced species** of fruits and berries
- Common **problems** of ageing and comparatively low share of formally educated farmers
- Developing formal **business cooperation** in the fruit sector with a still fully untapped potential
- Lack of representative and reliable data on the overall **innovative capacity** of companies operating in the fruit sector
- Possibilities for increasing the level of **local consumption** of both fresh and processed fruit and berries
- Limited or no hard data on the presence and scope of existing **demonstration farms** in the fruit sector

ANALYSIS OF EXISTING KNOWLEDGE TRANSFER PRACTICES IN RESEARCH ORGANISATIONS




KNOWLEDGE TRANSFER PRACTICES IN FRUIT RESEARCH ORGANISATIONS IN LATVIA, LITHUANIA AND POLAND

1. Types of communication



Direct (face-to-face) practices



Indirect (non-interactive) practices



Individual interaction



Group interaction



Communication by audio-visual means



Communication via textual materials

Examples:







2. Themes covered

Harvesting - harvesting technologies, post-harvest treatment

Processing - processing technologies, development of new products, biochemical evaluation

Storage - storage technologies

Fruit growing - cultivars, rootstocks, orchard management, fruit development, plant physiology, growing technologies, orchard systems, machinery, plant protection

Other topics - current research themes, foreign experience, economic analysis

3. Target audiences

1. Agricultural producers

2. Food businesses

3. Research organisations

4. Consumers

5. Public administration

4. Outcomes

Knowledge - delivered and improved local knowledge on fruit-growing and processing

Practices - provided solutions to urgent practitioners' problems

Networking - facilitated peer communication, exchange of experience and knowledge

Public visibility - increased publicity and organisational visibility of research institutes

Ideas - generation of new ideas for future research projects, initiatives, products

5. Lessons learned

1. Diversify and increase advertising of communication materials and events through various media.

3. Plan event timely and cooperate with other agricultural knowledge agents.

2. Introduce moderate entry fees for seminars to be able to cover relevant applied research costs.

4. Be more pro-active in receiving feedback from target audiences.

<http://fruittechcentre.eu/>
 This material has been developed by
 Institute of Horticulture (LatPol), Dabule, Latvia.
<http://www.darzkopiba.institut.lt/>

1. Types of communication



Direct (face-to-face) practices



Indirect (non-interactive) practices



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Group interaction



Communication by audio-visual means



Communication via textual materials

Examples:








- Presence of a broad range of knowledge and innovation transfer practices
- Increasing diversification of communication tools

Interreg
Baltic Sea Region
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**KNOWLEDGE TRANSFER PRACTICES
IN FRUIT RESEARCH ORGANISATIONS
IN LATVIA, LITHUANIA AND POLAND**

1. Types of communication

Direct (face-to-face) practices
Indirect (non-interactive) practices

Individual interaction
Group interaction
Communication by audio-visual means
Communication via textual materials

Examples:
Exhibitions
Audio-visual materials
Web pages
Printed publications
TV broadcasts

2. Themes covered

Harvesting harvesting technologies, post-harvest treatment
Processing processing technologies, development of new products, biochemical evaluation
Storage storage technologies
Fruit growing cultivars, rootstocks, orchard management, fruit development, plant physiology, growing technologies, orchard systems, machinery, plant protection
Other topics current research themes, foreign experience, economic analysis

3. Target audiences

1. Agricultural producers
2. Food businesses
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4. Consumers
5. Public administration

4. Outcomes

Knowledge - delivered and improved practical knowledge on fruit-growing and processing
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- Communicating both theoretical and practice-oriented content
- Instruction and innovation (established and new knowledge)
- Addressing various knowledge needs of different target groups




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Main difficulties:

- Limited audience
- Limited resources
- Advertising constraints
- Work/time consuming nature of transfer practices
- Organisational/managerial problems
- Limited user feedback
- Physical factors

GOOD PRACTICES OF DEMONSTRATION: 29 FARM PROFILES

SUCCESS FACTORS OF DEMO-FARMS (I)

- **HUMAN RESOURCES: EXPERIENCE AND KNOWLEDGE**
 - Practice- (also research-)based experience and knowledge in fruit growing/storage/processing
 - Former informal/formal experience in knowledge communication
 - Knowledge of the needs of fruit-growers and sectoral trends
 - Managerial and marketing skills
 - Educated and progressive employees
- **HUMAN RESOURCES: PERSONAL QUALITIES**
 - Readiness to learn of and introduce innovative farming practices, new varieties
 - Willingness to share ones own experience
 - Readiness to open the farm for visitors
 - Readiness to learn also from other fruit-growers
 - Responsiveness to peer inquiries, communication skills
- **TECHNICAL RESOURCES: INFRASTRUCTURE**
 - Adequate size of plantations for a demonstration
 - Sufficient technical equipment for production activities
 - Suitable premises for hosting demonstrations (seminars, training events)

SUCCESS FACTORS OF DEMO-FARMS (II)

■ **FINANCIAL RESOURCES**

- Availability and use of financial support for demonstration activities
- Availability and investment of financial resources in farm's modernisation
- Good economic performance of the farm's production/processing activities

■ **FARMING PROFILE**

- Diversity of crops/varieties vs. monoculture (mainstream vs. niche)
- Distinct conditions (e.g. regional climate/weather conditions)
- Specific production system (e.g. organic farming)
- Applicability of the demonstrated solutions to different scales of farming (incl. small-holders)
- Possibility of using demonstrations also as a means for broadening the client base for the core business of the demo farm

■ **COOPERATION**

- Acknowledgement of the importance of collaboration and knowledge sharing
- Good collaboration with local authorities, NGOs, scientists, advisors
- Maintaining good contact and long-term relationships with existing clients – promoting user feedback

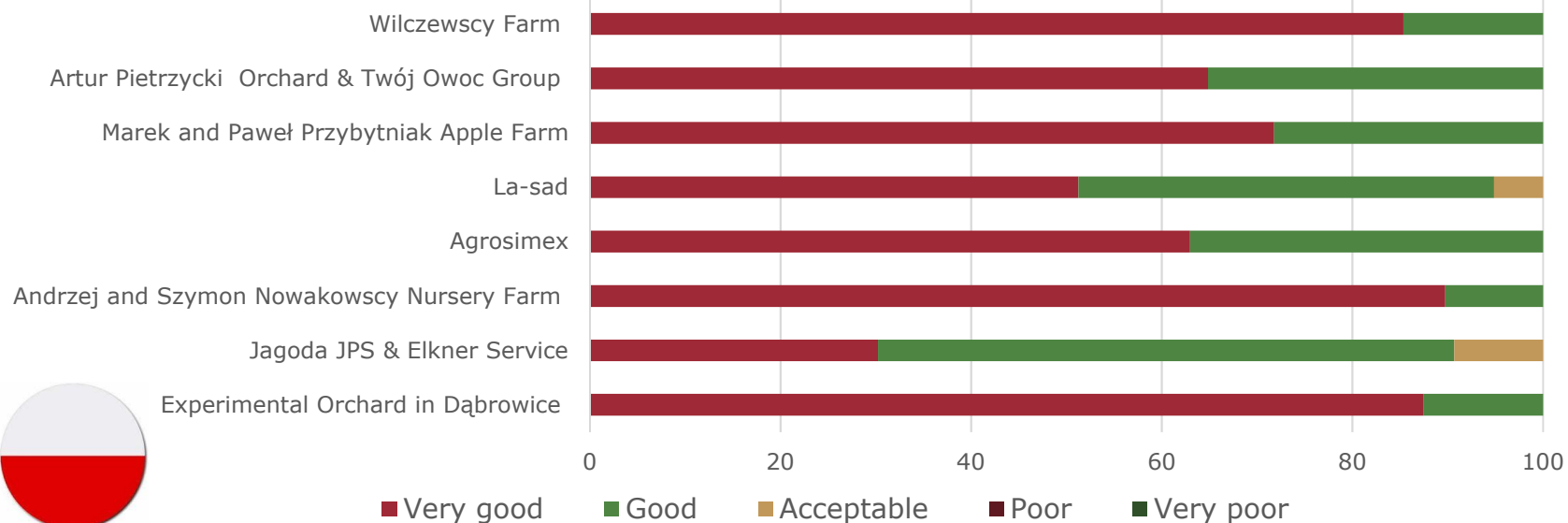
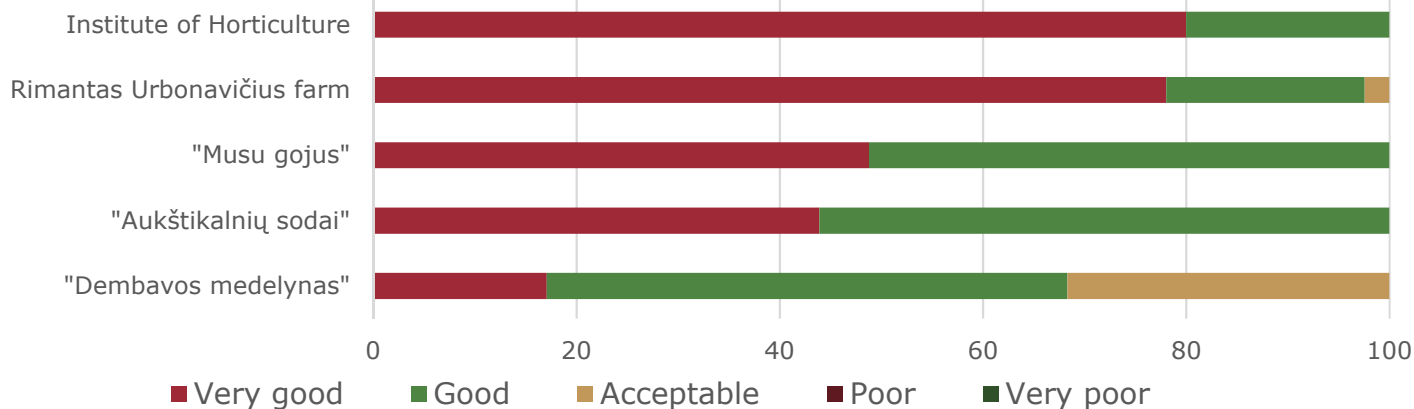
PROBLEMS FACED BY DEMO-FARMS

- **EXTERNAL SUPPORT** - lack of financial aid for dissemination activities
- **KNOWLEDGE** - knowledge gaps (incl. scientific information, requirements for demonstrations)
- **EXPERIENCE** - lack of experience in hosting demonstrations
- **TIME** - time-consuming nature of organising and implementing demonstrations
- **COSTS** - limited economic benefit of demonstration activities for the farm
- **LOCATION** - non-central location of the farm inhibiting accessibility by visitors
- **STAFF** - lack of qualified employees available on a regular basis
- **TECHNICAL MEANS** - lack of equipment for presentations
- **WEATHER/CLIMATE CONDITIONS** – seasonality; unpredictability; need to hold demonstrations in an open field; impact of climate change on the profile and effectiveness of the demonstrated practice
- **REGULATIONS** – changes in legal requirements at the national and EU level making demonstrated practices outdated or in need of adaptations
- **INDIVIDUALISATION** – limited record of positive experience and skills of cooperation
- **UPTAKE OF DEMONSTRATED PRACTICES** - limited use made by demonstration visitors of the provided advice

**Evaluation feedback by Latvian partners (n=41)
of the visited demo sites in Lithuania and Poland
during the study trip
(August 2017)**

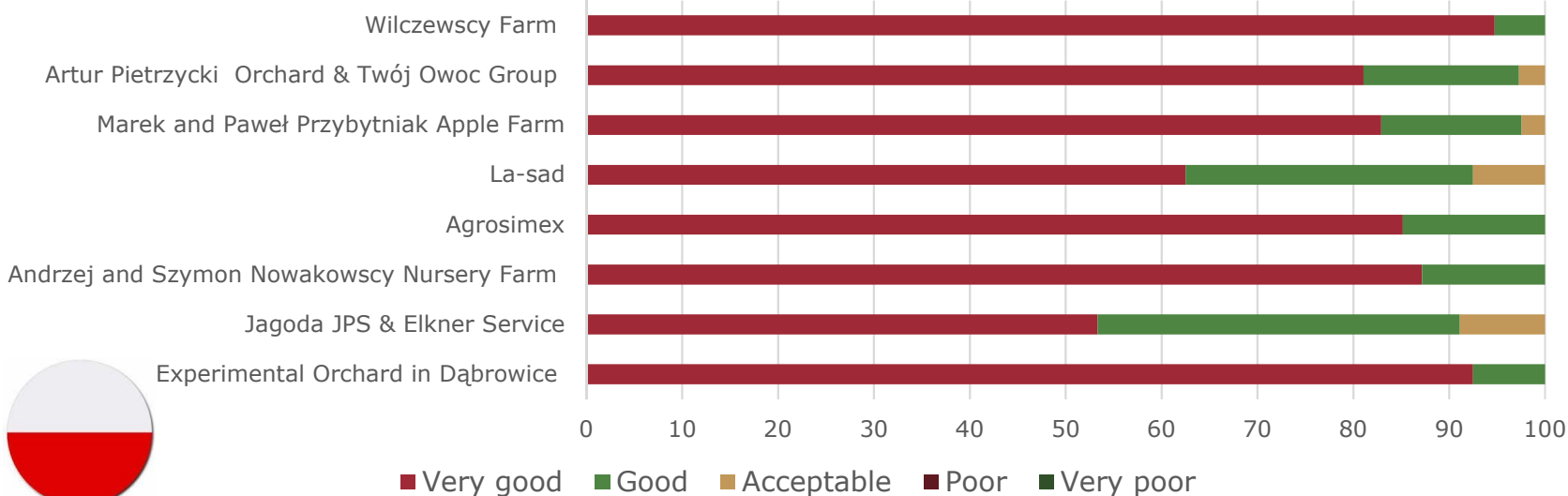
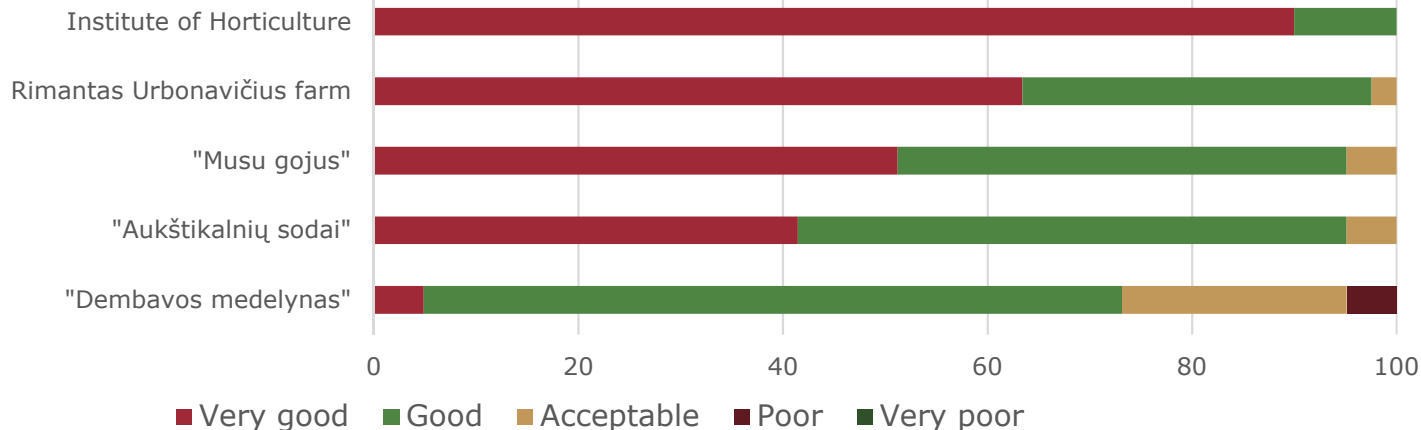
Overall impression

[What is your overall impression of the visited demonstration sites and the demonstration process?]



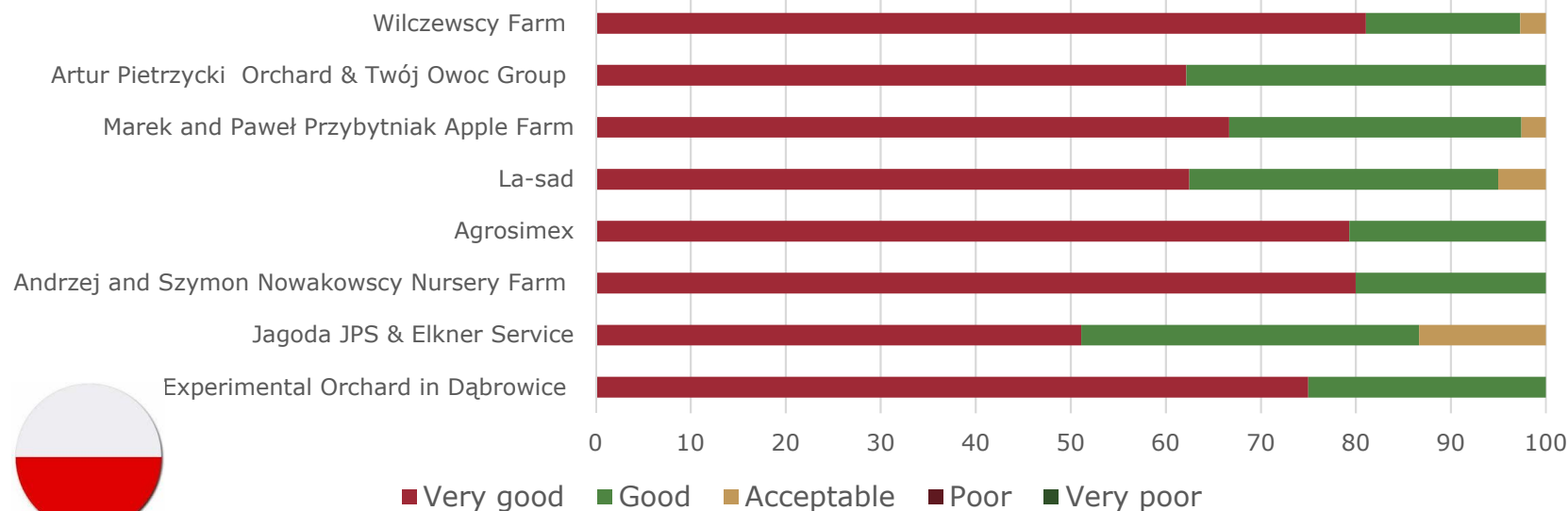
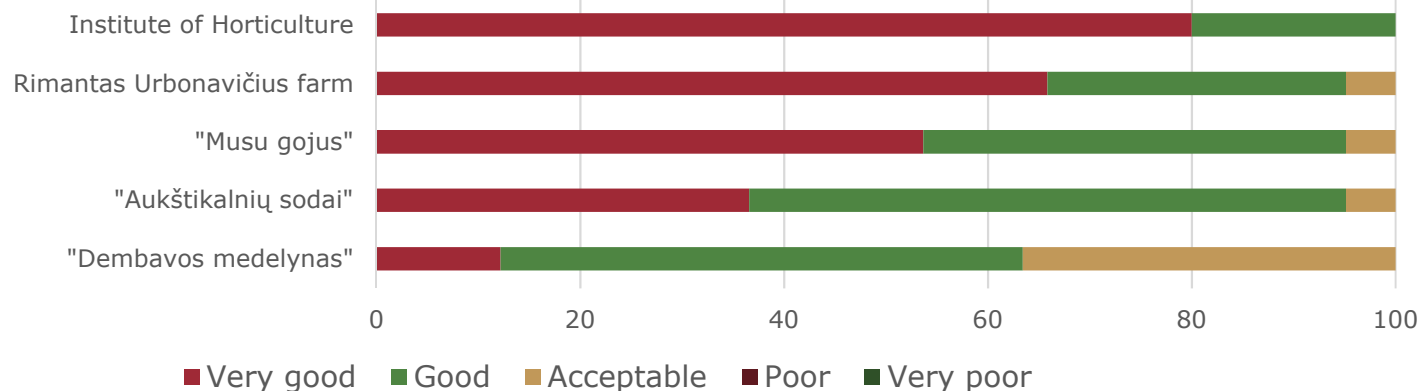
Demonstration infrastructure

[Please rate the infrastrcuture for hosting demonstrations of each demonstration site]



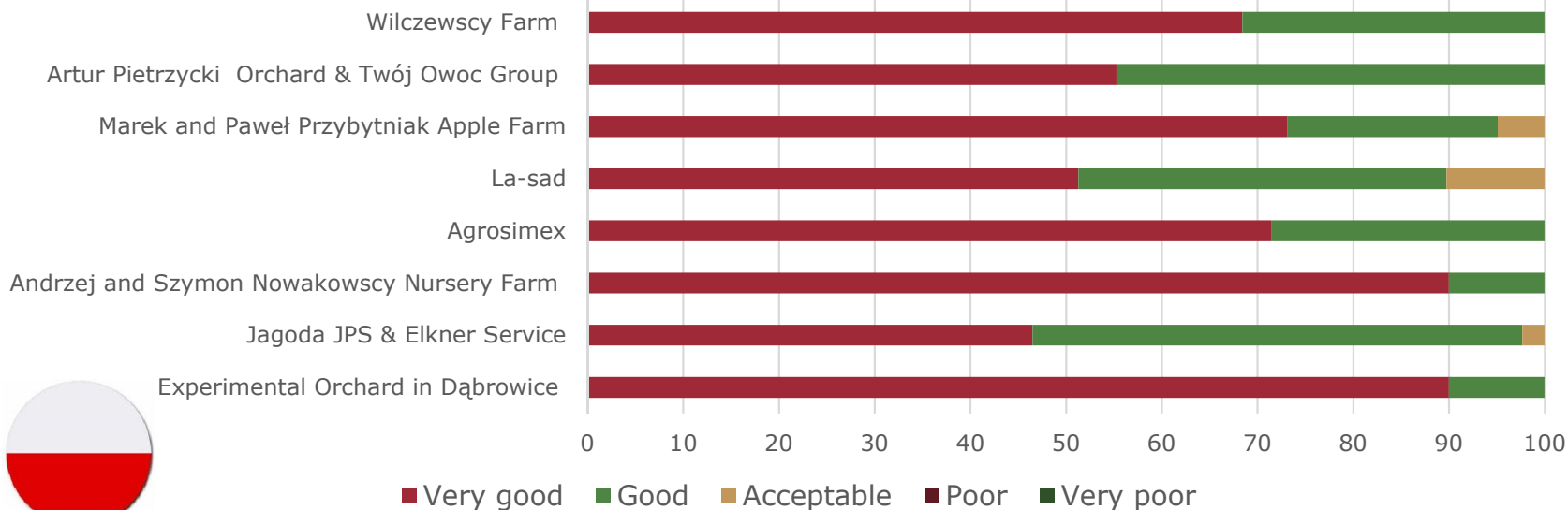
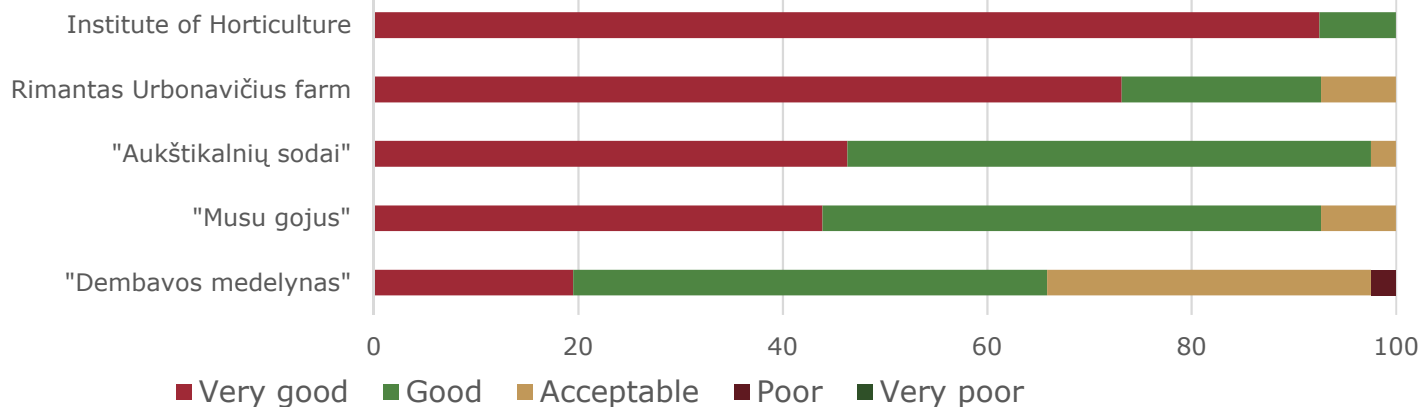
Demonstration objects

[Please rate the choice of the demonstration objects on each demonstration site in terms of their overall topicality and applicability by potential users]



Demonstration process

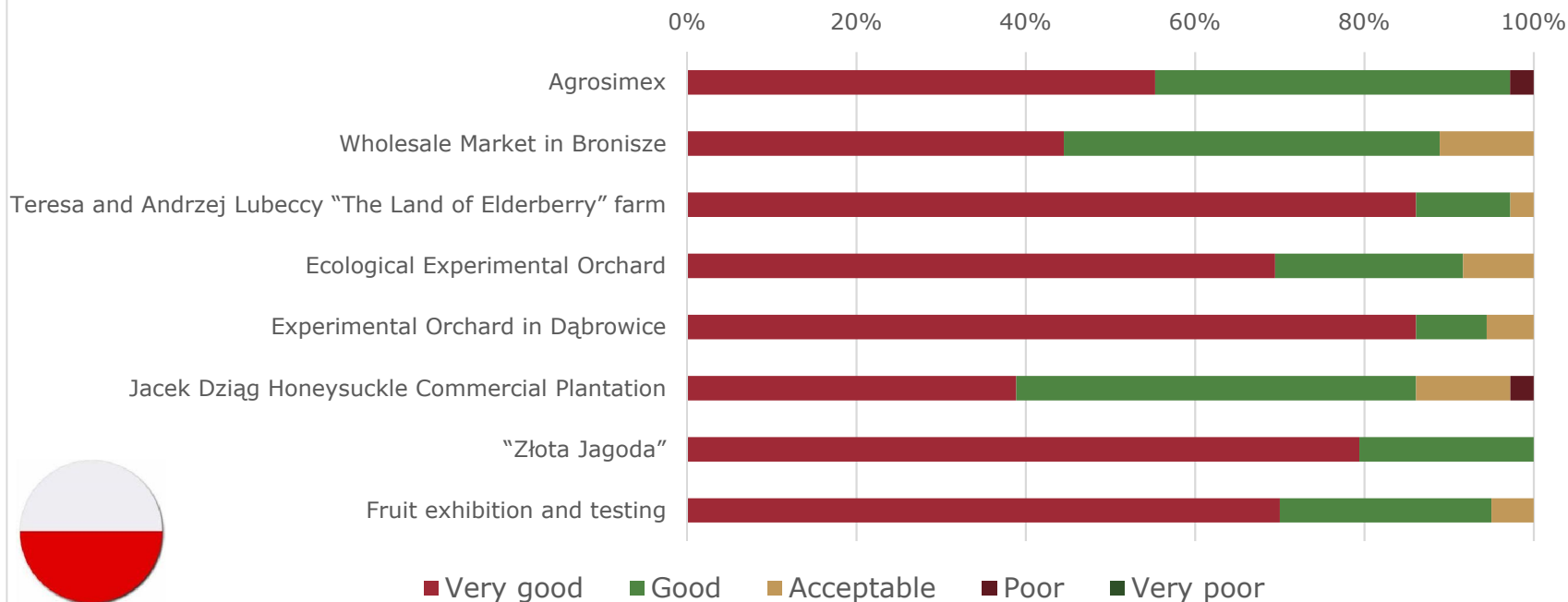
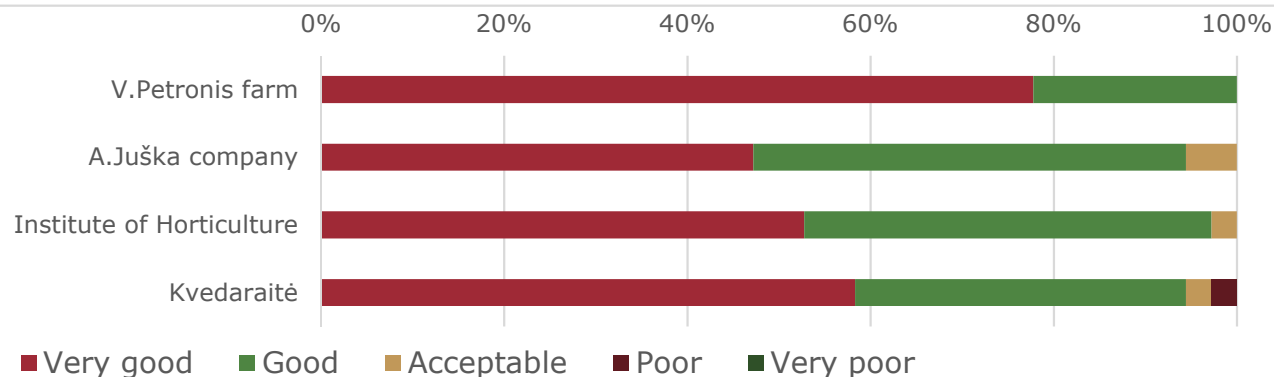
[Please rate the quality of the observed demonstration process in each demonstration site]



**Evaluation feedback by Latvian partners (n=36)
of the visited demo sites in Lithuania and Poland
during the study trip
(June 2018)**

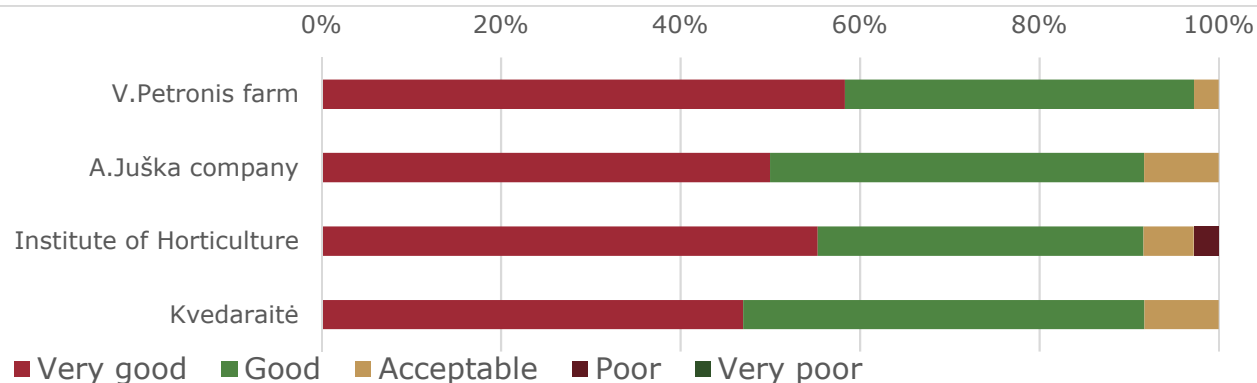
Overall impression

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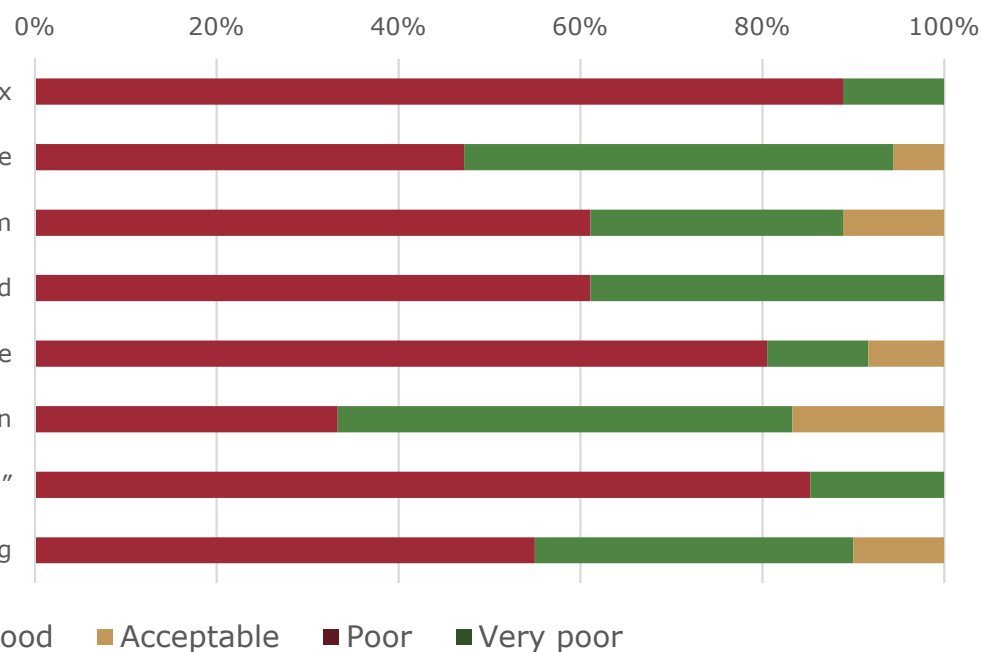


Demonstration infrastructure

[Please rate the infrastructure for hosting demonstrations of each demonstration site]

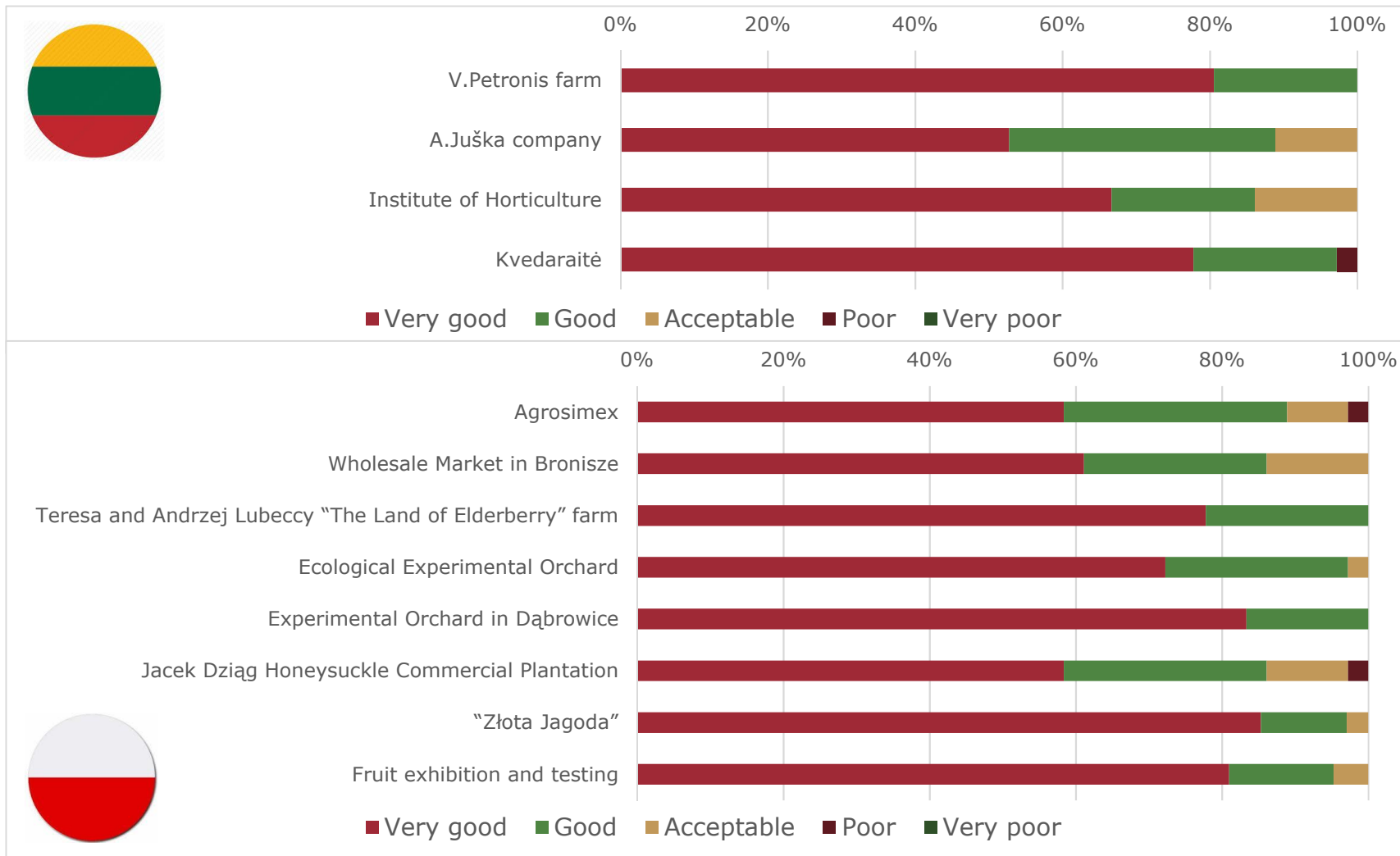


Teresa and Andrzej Lubeccy "The Land of Elderberry" farm



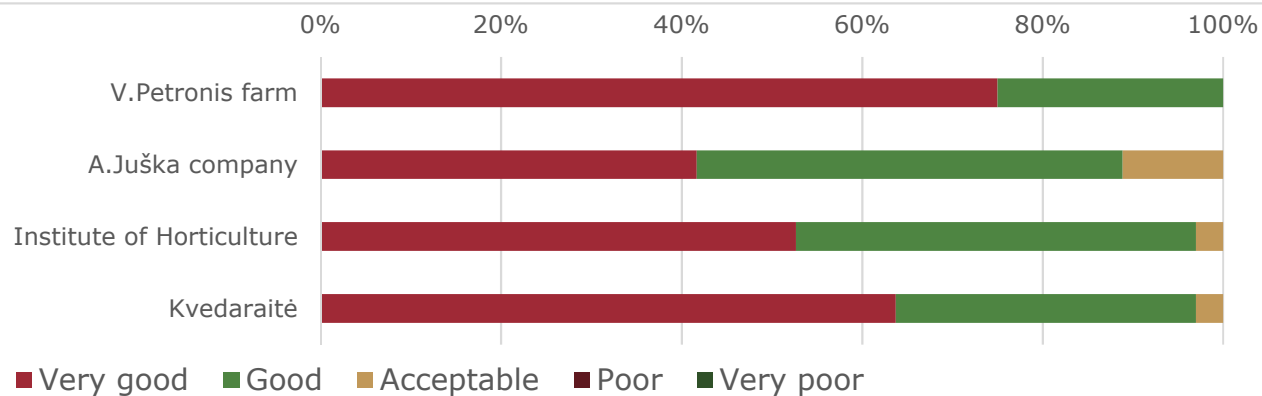
Demonstration objects

[Please rate the choice of the demonstration objects on each demonstration site in terms of their overall topicality and applicability by potential users]

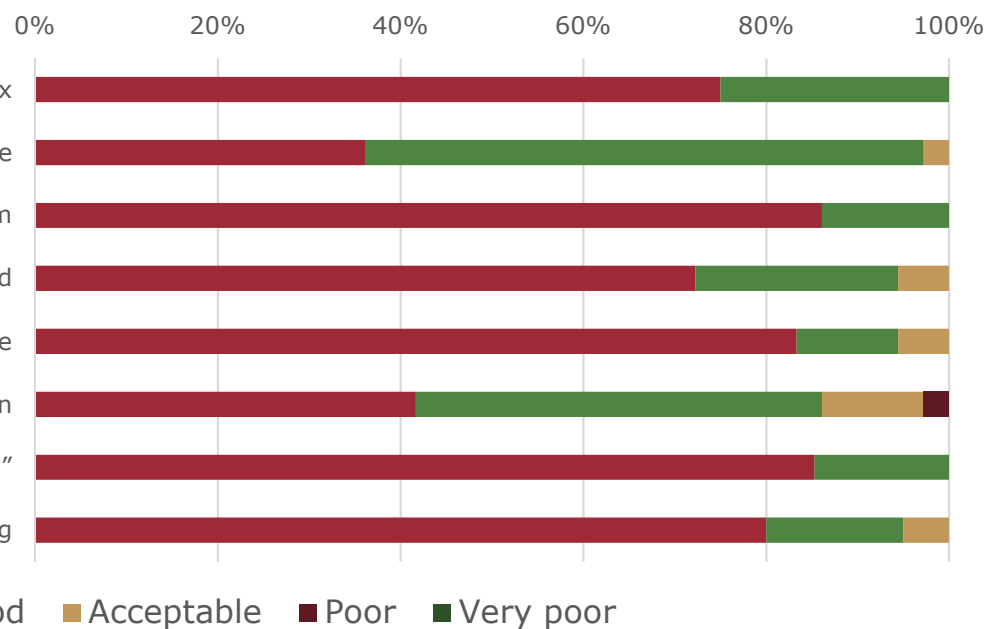


Demonstration process

[Please rate the quality of the observed demonstration process in each demonstration site]



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USER PERSPECTIVE ON SUCCESSFUL DEMONSTRATIONS

■ **DEMONSTRATION FARM (Where)**

- Commercially and technologically developed
- Following the newest trends in the sector
- Ensuring planned/systematic development
- Appropriate for the farm size of the visiting peers

■ **DEMONSTRATOR (Who)**

- Knowledgeability
- Hospitality
- Charismatic, outgoing/talkative character
- Optimism, positivism, humour
- Envisaging future perspective of the farm
- Frankness in sharing both positive and negative experiences (mistakes, problems)
- Openness to catch questions (ones not easy to answer)



USER PERSPECTIVE ON SUCCESSFUL DEMONSTRATIONS

■ **DEMONSTRATION OBJECTS** (What)

- Both end-result and process
- Equipment/technologies in action
- Plantations/gardens (varieties; methods of planting/cultivation/fertilisation/pruning/harvesting/pest control; crop load, tree growth regulation, etc.)
- Sufficient diversity of demo objects (comparability of different methods/varieties)
- Nuts and bolts of the applied solutions
- Economic justification of chosen practices, farming system
- Insight into marketing activities



USER PERSPECTIVE ON SUCCESSFUL DEMONSTRATIONS

■ DEMONSTRATION PROCESS (How)

- Combination of initial (ppt, video) presentation/leaflet and a field visit
- Practical demonstrations in the garden/field
- Presence of the farm manager during the field visit
- Spilt-up into smaller groups for guided tours
- Facilitation of free and easy atmosphere
- Well-developed and thorough narrative
- Consistency and accuracy of statements
- Limiting possible language barriers
- Sufficient time and opportunities for face-to-face «question and answer» sessions
- Encouraging both sophisticated and «naive» questions



■ INFRASTRUCTURE (Under what conditions)

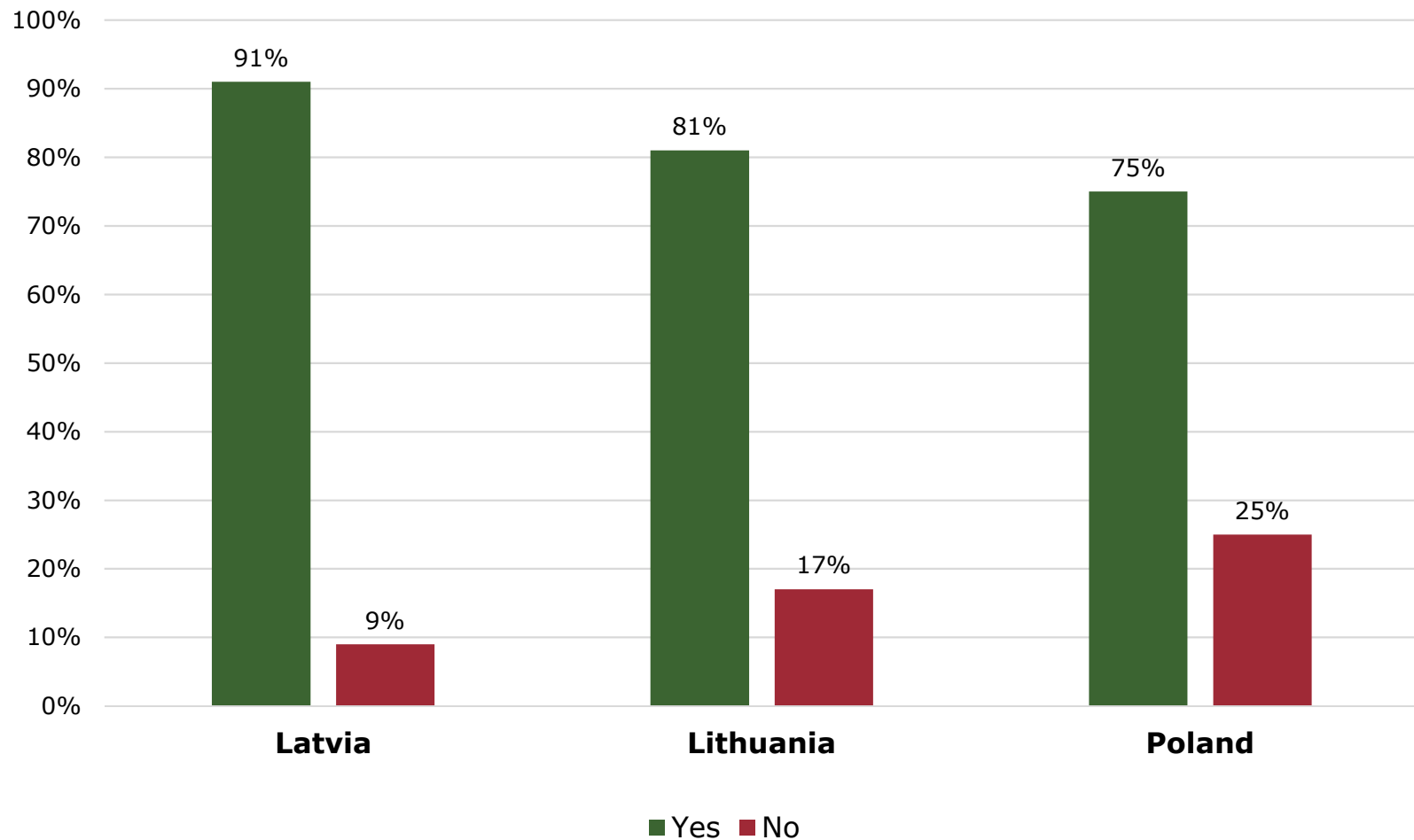
- Accessibility by buses
- Convenient and well-managed walking/driving paths for visitors
- Well-attended working and surrounding area
- Good overview of the demonstration site
- Portable sound equipment for better audibility by larger groups
- Benches for visitors at selected places in the garden
- In-door premises/facilities for group visits

**DEMAND FOR DEMONSTRATIONS:
USER SURVEY RESULTS
(February 2018)**

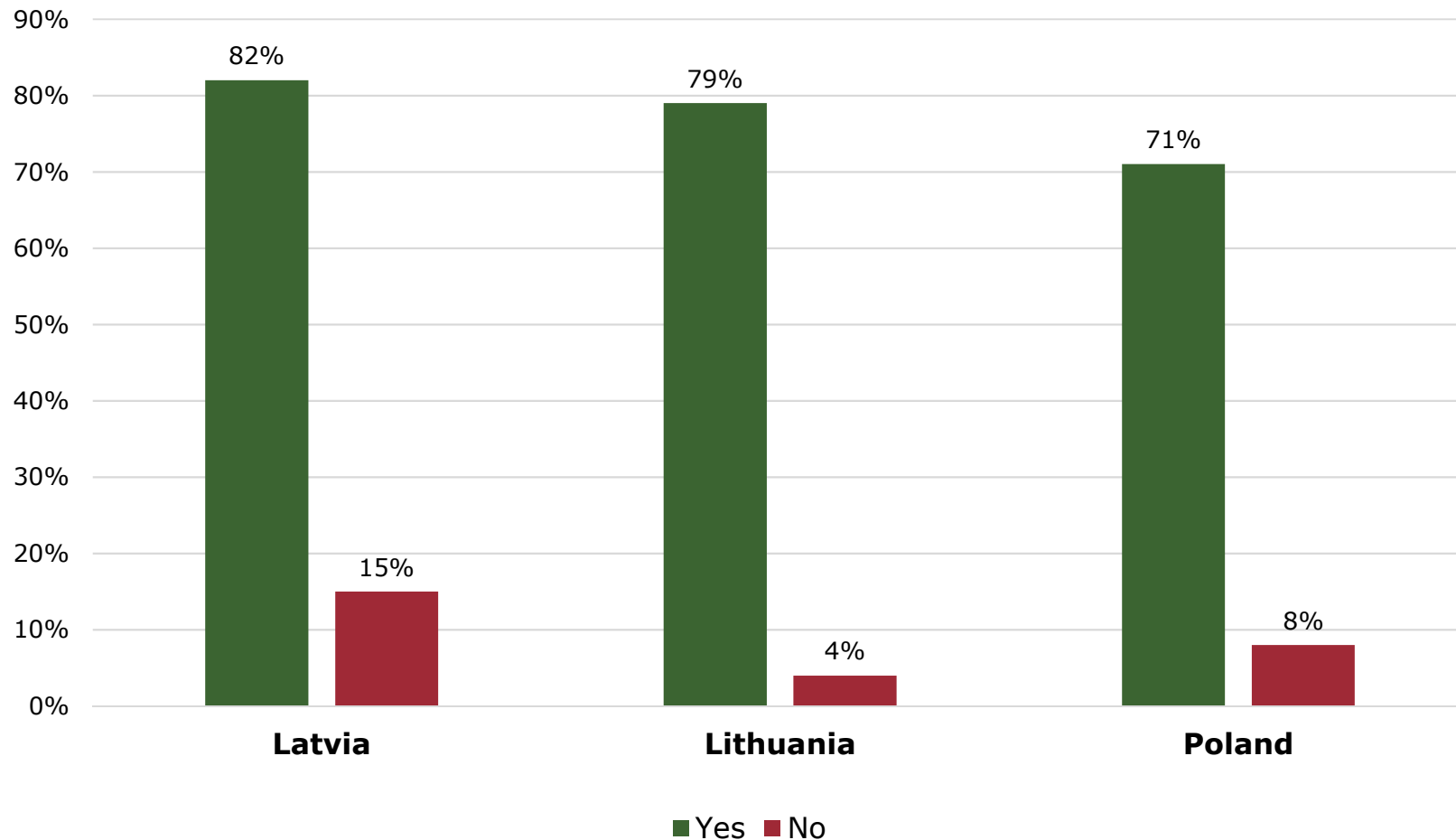
PROFILE OF RESPONDENTS

- **Number:** 157 (54 – Latvia, 52 – Lithuania, 51 – Poland)
- **Gender:** 75% - male, 25% - female
- **Regional coverage:** Latvia – all 5 planning regions, Lithuania - 22 districts, Poland - Mazowsze region
- **Average age:** Poland – 42, Lithuania – 41, Latvia – 50,5
- **Average turnovers:** up to 15 000 EUR – Latvia 19%, Poland 39%, Lithuania 52%

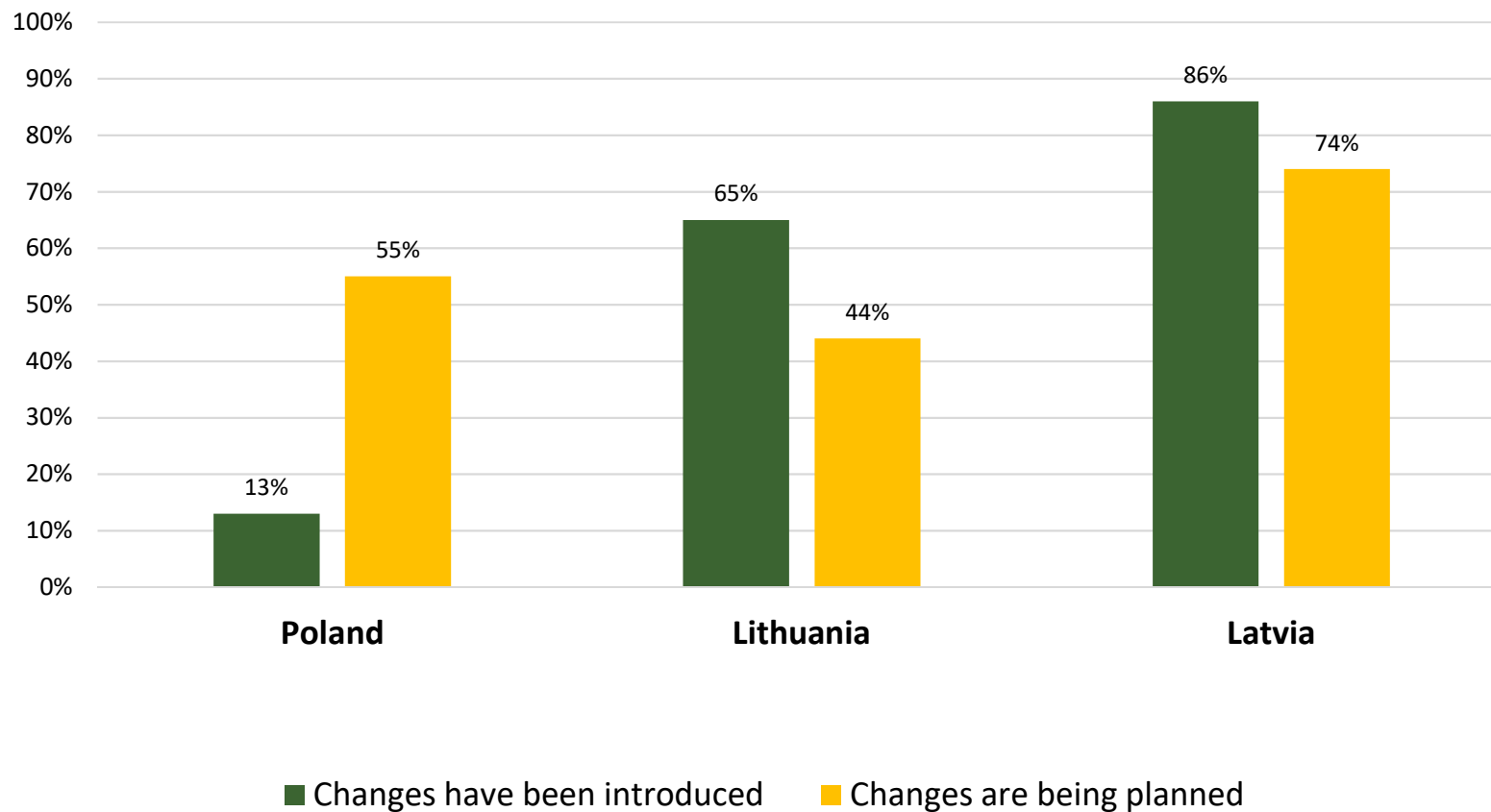
Have you ever attended a demonstration event?



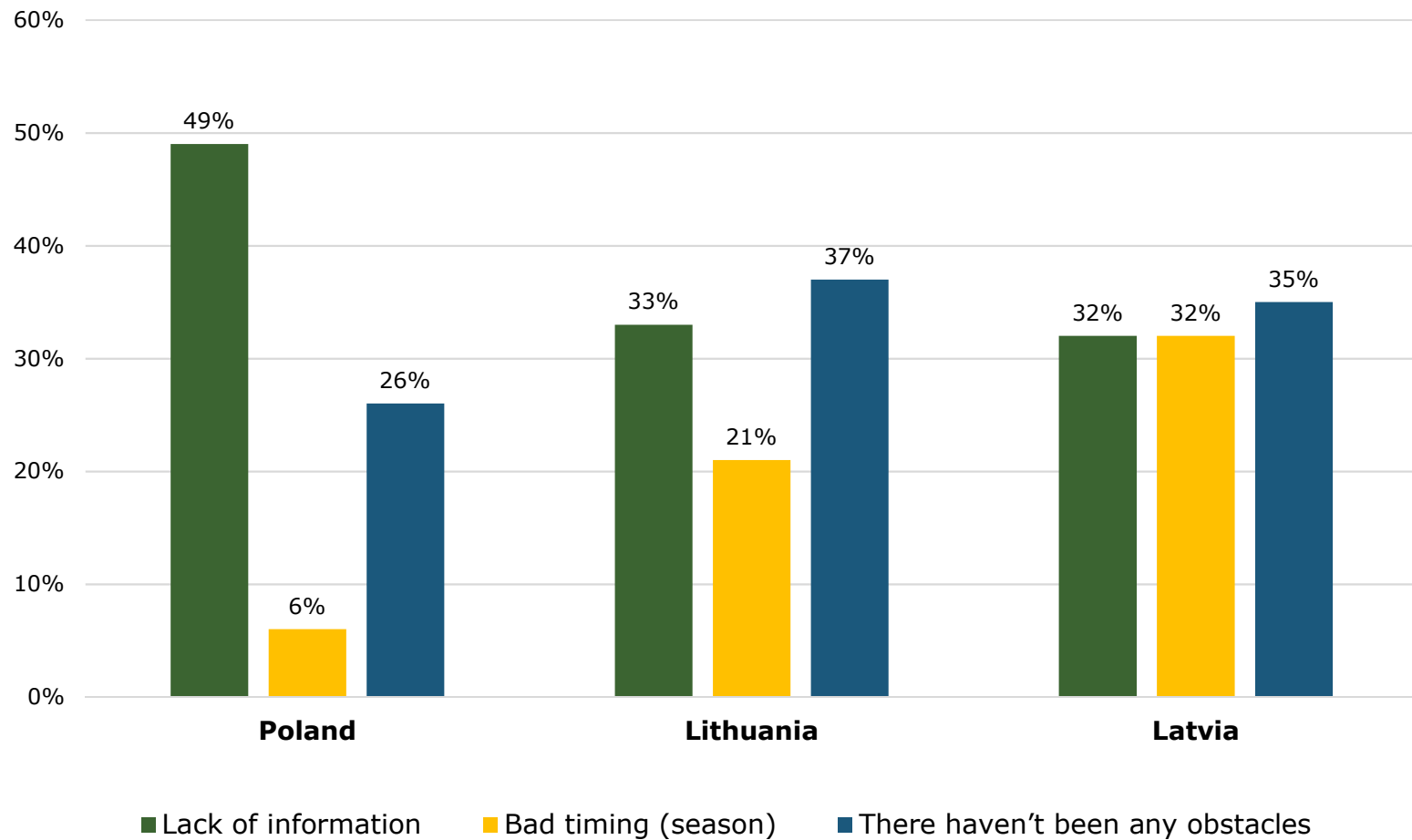
Are you planning to attend a demonstration event in the next 12 months?



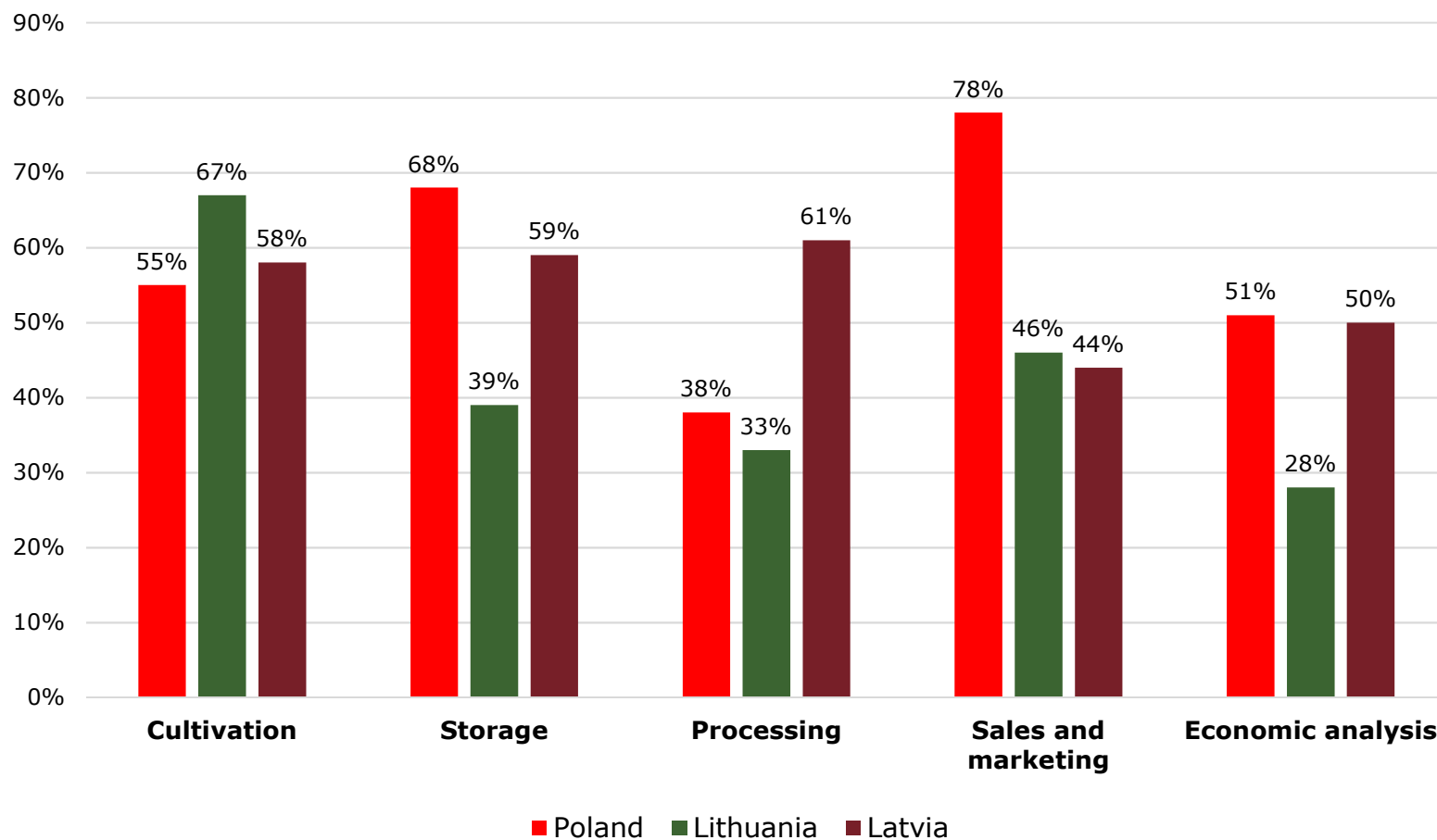
Impact of attending demonstrations on farm



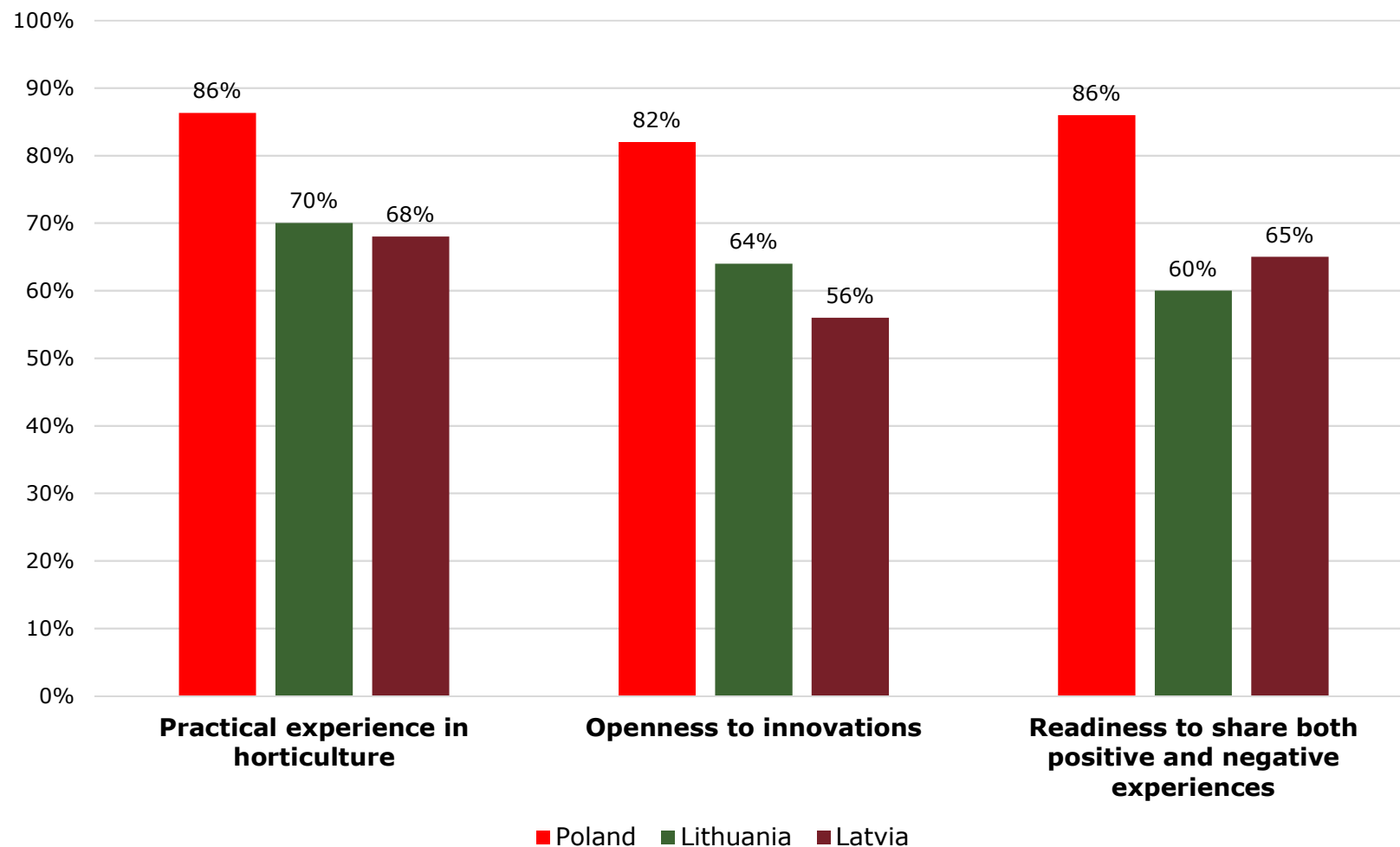
Main obstacles to attending demonstrations



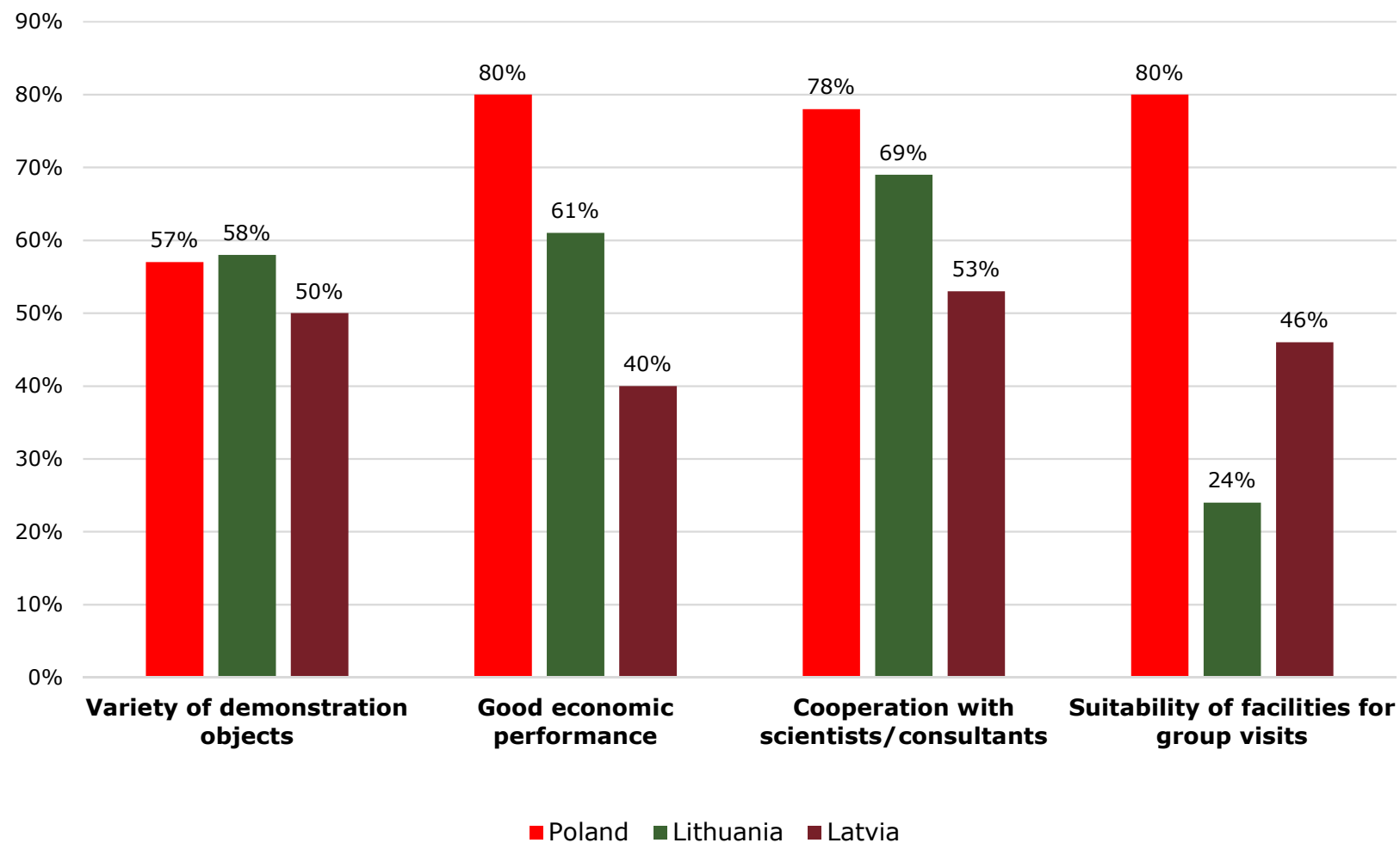
Preferred topics of demonstrations



Characteristics of a demonstration organiser – «important»



Characteristics of demo farms – «important»



SWOT ANALYSIS OF DEMONSTRATION ACTIVITIES



Latvia

- Emerging networks of farmers used for mutual formal and informal advice and information exchange
- Established trust-based relations between fruit growers and fruit scientists
- Access by (new) companies to practical services and advice offered by scientists on fruit production and development of novel processed fruit produce and processing technologies
- Farmers' access to and use made of foreign experience (e.g. study visits)

Lithuania

- Farmers' willingness to attend demonstrations
- Progressive farmers interested in learning of innovations taking place both in the country and abroad and applying those on their farms

Poland

- Renowned advisory centres providing extensive support for farmers and entrepreneurs on fruit cultivation, storage, processing
- Crop diversity in the production at the demo farms attracting many growers
- Increasing number of farmers with experience, good foreign language skills and willingness to learn and to travel

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ASSESSMENT OF ON-FARM DEMONSTRATION ACTIVITIES IN THE FRUIT SECTOR IN LATVIA, LITHUANIA, POLAND

1. Data for SWOT analysis

- statistical data
- national socio-economic studies
- good practice cases of demonstration activities
- user surveys
- national stakeholder workshops

2. SWOT analysis

Strengths

- Demand for information and knowledge among fruit producers
- Recognition of peer-to-peer learning
- A diversity of established knowledge transfer practices
- Readiness and capacity of research institutes to organise and host demonstrations
- Developed cross-border knowledge exchange

Weaknesses

- Lack of research on demo farms
- Limited experience with organisation of demonstrations on commercial farms
- Lack of continuous financial support for demonstration activities
- Unclear criteria for qualifying as a demo farm
- Restricted scope of incentives for farms to become demo hosts
- Farmers' fear of competition

Opportunities

- Increasing recognition of the value of demonstrations by policymakers
- Targeted and evidence-based use of EU funds for facilitating farmers' learning
- Development of a coordinated network of demo farms in the Baltic Sea Region
- Continuous involvement of scientists in demonstration activities
- Intensification and diversification of publicity tools and channels

Threats

- Uncertainty about the future of the sector
- Diminishing relevance of established demo objects
- Low uptake of demonstrated practices
- High dependence on seasonality and weather conditions

3. Country level differences

Latvia	Lithuania	Poland
S: Established trust-based relations between fruit growers and fruit scientists	S: Demand for demonstration activities by farmers	S: Provision of extensive support for farmers and entrepreneurs by renowned advisory centres
W: Lack of full-time state-funded advisors in fruit production	W: Marginal role of demonstration activities in the official mission of research institutions	W: Demanding regulations on facilities for visitors
O: Use of demo farms for student internship	O: Fruit-growers' interest in sectoral innovations	O: Attraction of new clients as an incentive for demo hosts
T: Periodic oversaturation with project-based demonstration activities	T: Strongly monopolised sales market of fruit products	T: Urgent sectoral trade problems undermining support for demonstration activities

This material is part of the project "Advancement of non-technological innovation performance and innovation capacity in the fruit growing and processing sectors in selected Baltic Sea Region countries" and has been developed by the Institute of Horticulture (Latvian), Dobele, Latvia. <http://www.darzkopirasinstituts.lv/>

Weaknesses

- **Lack of research** on demo farms
- **Limited experience** with organisation of demonstrations on commercial farms
- **Lack of continuous financial support** for demonstration activities
- **Unclear criteria** for qualifying as a demo farm
- **Restricted scope of incentives** for farms to become demo hosts
- **Farmers' fear of competition**

Latvia

- Small size and low economic significance of the fruit sector
- Poor understanding of the sectoral needs at the policy level
- Lack of full-time state-funded advisors in fruit-growing and processing nationally and regionally
- Difficulties in identifying and selecting suitable demo farms (hosts willing to share knowledge)
- Insufficient lengths of some projects for developing demos on selected crops/varieties that need longer breeding and monitoring time
- Lack of demo farms where students can practice their skills as interns

Lithuania

- Shortage of specialised advisors in horticulture
- Marginal role attributed to demonstration activities in the mission of research institutions
- Lack of on-farm innovations for demonstration and funding for their introduction
- Farmers' reluctance to devote time for visitors

Poland

- Demanding regulations regarding adequate facilities for visitors considerably increasing initial capital investments
- Aging of farmers restraining them from visiting more distant demo farms

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Strengths
Weaknesses
Opportunities
Threats

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Threats

- Uncertainty about the future of the sector
- Diminishing relevance of established demo objects
- Low uptake of demonstrated practices
- High dependence on seasonality and weather conditions

3. Country level differences

Latvia	Lithuania	Poland
S: Established trust-based relations between fruit growers and fruit scientists	S: Demand for demonstration activities by farmers	S: Provision of extensive support for farmers and entrepreneurs by renowned advisory centres
W: Lack of full-time state-funded advisors in fruit production	W: Marginal role of demonstration activities in the official mission of research institutions	W: Demanding regulations on facilities for visitors
O: Use of demo farms for student internship	O: Fruit-growers' interest in sectoral innovations	O: Attraction of new clients as an incentive for demo hosts
T: Periodic oversaturation with project-based demonstration activities	T: Strongly monopolised sales market of fruit products	T: Urgent sectoral trade problems undermining support for demonstration activities

This material is part of the project "Advancement of non-technological innovation performance and innovation capacity in the fruit growing and processing sectors in selected Baltic Sea Region countries" and has been developed by the Institute of Horticulture (Latort), Dobele, Latvia. <http://www.darzkopirasinstituts.lv/>

Opportunities

- Increasing **recognition of the value** of demonstrations by policymakers
- Targeted and evidence-based **use of EU funds** for facilitating farmers' learning
- Development of a **coordinated network** of demo farms in the Baltic Sea Region
- Continuous **involvement of scientists** in demonstration activities
- Intensification and diversification of **publicity tools and channels**

Latvia

- Capitalisation on the already existing informal practices of knowledge exchange among peers and between different advisors and farmers
- Potential of demo farms to become places where students can practice new skills (i.e. internships) as well as produce good quality undergraduate/ postgraduate theses as part of their studies

Lithuania

- Interest in the introduction of new crops and development of innovative fruit products by fruit growers and processors

Poland

- Increased sales volumes of demonstrated products and attraction of new customers as a positive economic effect and incentive for the demo hosts (input suppliers)
- Systematic engagement of university students specialising in horticulture in demonstrations to boost and optimise the use of demo farms
- Use of EU grant funding for organising and maintaining a network of demo farms

DARZ KOPIRAS INSTITUTS **Interreg Baltic Sea Region** **InnoFruit**

ASSESSMENT OF ON-FARM DEMONSTRATION ACTIVITIES IN THE FRUIT SECTOR IN LATVIA, LITHUANIA, POLAND

1. Data for SWOT analysis

- statistical data
- national socio-economic studies
- good practice cases of demonstration activities
- user surveys
- national stakeholder workshops

Strengths
Weaknesses
Opportunities
Threats

2. SWOT analysis

Strengths

- Demand for information and knowledge among fruit producers
- Recognition of peer-to-peer learning
- A diversity of established knowledge transfer practices
- Readiness and capacity of research institutes to organise and host demonstrations
- Developed cross-border knowledge exchange

Weaknesses

- Lack of research on demo farms
- Limited experience with organisation of demonstrations on commercial farms
- Lack of continuous financial support for demonstration activities
- Unclear criteria for qualifying as a demo farm
- Restricted scope of incentives for farms to become demo hosts
- Farmers' fear of competition

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Threats

- **Uncertainty** about the future of the sector
- **Diminishing relevance** of established demo objects
- **Low uptake** of demonstrated practices
- High **dependence on seasonality** and **weather** conditions

Latvia

- Periodic oversaturation with demonstration activities due to project-based activities
- Too demanding formal requirements

Lithuania

- Too high costs of many innovations for small farms
- Restricted possibilities for marketing of manufactured products due to strongly monopolised sales market
- Slow overall development of horticultural sector serving as a factor diminishing the needs for innovations

Poland

- Urgent problems faced by the sector in terms of trade etc. leading to understating of issues related to the development of demonstration activities
- Very low profits inhibiting farmers from spending the money for traveling to demo farms