## **SFSC in POLAND**

The potential contribution of Short Food Supply Chain (SFSC) ventures to building a more sustainable, equitable and secure food system in Poland that is in line with the vision contained in the Strategic Dialogue on the Future of EU Agriculture

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Kaszów, 6th February 2025

#### **CONTENTS**

1.	Introduction	3
	The broader SFSC context	
3.	What is the current situation with SFSC in Poland?	4
4.	Ideal/Desired situation of SFSC in Poland?	6
5.	Transition from Current to Desired situation	7
6.	Who needs to do what to move from the current to ideal situation with SFSC?	10
7.	R&D Priorities	11
8	References	12

#### 1. Introduction

Addressing the need for a new vision for EU Agriculture, in its Strategic Dialogue on the Future of EU Agriculture, the European Commission noted that:

"Thanks to Europe's agri-food sector, 450 million people have access to safe, healthy, and affordable food.... EU farmers are the backbone of Europe's food self-sufficiency, and vital drivers of jobs and sustainable growth in rural areas. They are making a central contribution to our collective green transition. At the same time, they face challenges, such as climate change and a competitive global market. They have shown remarkable resilience throughout a pandemic, an energy crisis, the consequences of Russia's war of aggression against Ukraine, and high inflation."

Local markets for locally produced food based on Short Food Supply Chains (SFSC) have now recognised by the European Commission and many EU member states as holding significant potential for realising the European vision for sustainable agriculture and food systems.

This paper reviews the literature and ongoing research & development projects as part of an exploration of the potential contribution of SFSC in Poland in achieving EU vision of the future of agriculture that seeks a shift toward more localized and sustainable food systems.

#### 2. The broader SFSC context

Short food supply chains (SFSC) are increasingly recognized as potential mechanisms or pathways for advancing food security, promoting sustainable agricultural practices, and revitalizing local economies. By reducing the physical and relational distance between producers and consumers, SFSC advocates point to greater transparency and trust, which are critical for rebuilding confidence in food systems (Drejerska and Sobczak-Malitka 2023; Chiffoleau et al. 2016). Environmentally, SFSC are claimed minimize transportation-related emissions and encourage agroecological practices that enhance local biodiversity (MDPI 2023; Woodward and Hird 2021).

From a public health perspective, SFSC potentially improve access to fresh, nutritious, and seasonal foods, addressing dietary inequalities often exacerbated by industrialized supply chains (Interreg CENTRAL EUROPE 2024; Giampietri et al. 2016). However, the dominance of large-scale, export-oriented agriculture continues to marginalize SFSCs, as regulatory frameworks and market infrastructures disproportionately favor industrial models (Goodman 2004; Augère-Granier 2016). This imbalance underscores the need to reframe policies and consumer perceptions to prioritize localized systems.

The "alternative" nature of SFSC—as defined by Whatmore, Stassart, and Renting (2003)—lies in their ability to challenge conventional food networks through participatory governance and community engagement. For example, producer-consumer collaborations, such as community-supported agriculture (CSA), exemplify how shared decision-making can democratize food systems (Chiffoleau et al. 2016). Yet, the scalability of such models remains constrained by logistical fragmentation and limited institutional support (Todorovic et al. 2018; Masar 2019).

In summary, SFSC potentially offer a pathway to sustainability and resilience, but their success hinges on addressing structural biases, enhancing stakeholder collaboration, and leveraging innovations like digital platforms (e.g., APPETIT) to bridge gaps in infrastructure and literacy (Serafin et al. 2023; Van Veldhuizen et al. 2020).

#### 3. What is the current situation with SFSC in Poland?

In the context of the Future of EU Agriculture, Poland's agricultural sector is defined by its highly fragmented farm structure, resilience to global challenges, and untapped potential in short food supply chains (SFSCs)

With over 1.3 million farms, Poland has the second-largest agricultural workforce in the EU, yet 75% of these farms are smaller than 10 hectares, and 72% do not exceed 5 hectares, highlighting the dominance of small, family-run, part-time operations that still underpin rural economies and cultural traditions (Eurostat 2023; Wilkin and Halamska 2022).

Small farms contribute significantly to Poland's agricultural output, particularly in dairy, cereals, poultry, and horticulture, with the sector generating twice the EU average in gross value added and accounting for 52% of the country's land area (Ministry of Agriculture and Rural Development 2022). However, their small scale limits bargaining power in conventional value chains, where intermediaries often capture most profits, leaving farmers vulnerable to price volatility and market pressures (Józwiak et al. 2021).

Challenges to farmers' positioning in agri-value chains include climate change impacts—such as the 4% decline in cereal production in 2024 due to frosts and droughts (Agricultural Market Agency 2024), as well as geopolitical disruptions like competition from Ukrainian grain imports, which have sparked protests among Polish farmers (Kowalski and Nowak 2023).

Additionally, Poland's aging farming population (average EU farmer age: 57) and rural depopulation threaten long-term sustainability of the small farm sector (Eurostat 2023).

To address these issues, short food supply chains (SFSC) are emerging as an organisational/business model for empowering small farmers employing non-industrial production methods to compete in the marketplace.

SFSC potentially reduce reliance on intermediaries, enhance profit margins, and strengthen connections between producers and consumers. Despite Poland's fragmented farm structure—ideal for SFSC development—only 2.11% of farmers engaged in direct sales to consumers between 2017–2021, lagging behind EU peers like France (Głębocki and Jędrejek 2022).

Consumer demand has been changing with growing interest in locally-produced food. Surveys indicate that as many as 85% of Polish buyers prioritize product quality and up to 33% value traceable origins. Yet the growing market demand is being met by supermarket chains introducing 'local food' marketing rather than by significant increases in direct sales through various types of SFSC. Some of the barriers have been identified as logistical challenges, limited awareness on the part of both producers and consumers, and regulatory hurdles that hinder scaling (Krajewski 2021).

SFSC in Poland currently recognised as potential contributors to sustainability, equity, and food security through organising, strengthening and replicating localized food systems that prioritize direct producer-consumer connections.

The CAP Strategic Plan 2023–2027 and Poland's Sustainable Rural Development Strategy 2030 are key to an agri-transition. These policy and programme documents have identified pathways that seek to revitalize rural areas by incentivizing SFSC, organic farming, and modernization. Initiatives include expanding organic land use by 2030, supporting small-to-medium farms (up to 300 hectares), and fostering digital tools to streamline supply chains (Ministry of Agriculture and Rural Development 2022; European Commission 2023).

Environmentally, SFSC potentially reduce carbon footprints by minimizing transportation distances and promoting agroecological practices (Drejerska and Sobczak-Malitka 2023). The Local Products from Malopolska project has demonstrated the potential for regional food systems increasing farm income, enhancing biodiversity while lowering emissions (Serafin et al. 2023).

Economically, SFSC are a potential pathway to empowering small-scale farmers by bypassing intermediaries, allowing them to retain higher profits (Bloom and Hinrichs 2011).

The APPETIT Living Lab convened by IsoTech is developing IT-enabled organisational solutions in the form of a digital platform, which automates "intermediary services" (e.g., logistics coordination, payment systems) to reduce transaction costs for farmers and consumers (Serafin et al., 2023).

Socially, SFSC are also seen as potentially strengthening rural-urban ties via participatory models like community-supported agriculture (CSA), fostering food democracy (Chiffoleau et al. 2016).

Despite all the potential, SFSC-powered local markets for locally produced food remain marginal in the food system in Poland. Scaling and replication challenges persist. Regulatory frameworks favor industrial agriculture (Augère-Granier 2016), and logistical fragmentation limits scalability (Todorovic et al. 2018). Ventures such as the APPETIT platform seek to address these by digitizing market access, yet technical literacy gaps among small farmers remain a barrier (Van Veldhuizen et al. 2020).

The arguments for investing in SFSC solutions can be summarised as follows:

- Environmental Benefits: Reduced transportation emissions and biodiversity-friendly practices (Drejerska and Sobczak-Malitka 2023; Academia.edu 2023).
- Business benefits: Higher profit margins for farmers through direct sales (Bloom and Hinrichs 2011) and cost-sharing in collaborations (CORENET 2025).
- Rebuilding community: SFSCs strengthen community ties via participatory models like CSAs (Chiffoleau et al. 2016) and rural employment (Woodward and Hird 2021).
- Collaborative Governance: Multi-stakeholder networks (e.g., Food4CE) enable knowledge-sharing and policy advocacy (Interreg CENTRAL EUROPE 2024; Travaille and Hendriks 2010).

The arguments against investing in SFSC can be summarised as follows:

 Scalability Limitations: Fragmented logistics and small production scales hinder expansion (Todorovic et al. 2018; Masar 2019).

- Regulatory Complexity: Compliance costs disproportionately affect small producers (Augère-Granier 2016), necessitating coordinated lobbying (Whatmore, Stassart, and Renting 2003).
- Market Competition: SFSCs struggle against industrialized systems' pricing and reach (Goodman 2004).
- Collaborative Challenges: Stakeholder alignment is resource-intensive. Power imbalances (e.g., dominant retailers vs. small farmers) and mismatched priorities can derail partnerships (Werner and Schoepfle 1987; Woodward and Hird 2021).

#### 4. Ideal/Desired situation of SFSC in Poland?

The ideal or desired contribution of SFSC to more sustainable and resilient food system in Poland is very much aligned with the EU's Strategic Dialogue on the Future of Agriculture (European Commission 2024). Key SFSC contributions to food system reform and reorientation for sustainability, resilience and security include:

- Systemic Sustainability: Integrating circular economy principles (e.g., zero-waste distribution networks) and renewable energy use in local markets (Springer 2022).
- Equitable Value Chains: Ensuring fair pricing through transparent digital platforms like APPETIT, which enable real-time price negotiations between farmers and buyers (Woodward and Hird 2021).
- Scalable Resilience: Expanding collaborative models (e.g., farmer cooperatives) to regional/national levels using digital tools (CORENET 2025).
- Policy Integration: Embedding SFSCs into EU frameworks like the Common Agricultural Policy (CAP) to prioritize agroecology and rural development (European Economic and Social Committee 2024).

Policy and programming policies in Poland are very much in line with the EU Strategic Dialogue, especially:

- By 2035/2040, agriculture and food systems in Europe are flourishing within the limits of planetary boundaries. They deliver food security for Europe by providing sufficient access to a diverse range of safe, affordable, sustainable, and nutritious food for a healthy diet, produced to high standards of animal welfare and they protect and restore the natural environment and its ecosystem services in a resilient and robust economic manner (p21)
- European agriculture and food systems are based on visibility, predictability, and trust between stakeholders. Strong governance and collaboration in the supply chain support investment in more sustainable production, commerce03 and consumption (p 22).
- European agriculture and food systems provide everyone with easy access to safe, nutritious, sustainable, and affordable food of high quality and animal welfare.
   Consumers are empowered to make informed food choices that translate into concrete purchasing behaviour. Value chain actors, including farmers, are rewarded for their

investments in the sustainability transition and consumers acknowledge the value added of sustainable and higher welfare food and are willing to contribute by paying appropriate prices (p24).

• The European agriculture and agri-food sector functions as a cultivator of vibrant rural areas. It brings together communities and generates fruitful socio-economic ecosystems in which the mutually beneficial interlinkages between farming, food systems and rural areas are valued and exploited in a competitive framework. A differentiated bottom-up approach to rural policy has created an enabling environment for socio-economic opportunities and a sense of empowered self-responsibility. Rural areas in Europe are therefore attractive spaces where a high level of productivity goes hand in hand with a high level of outcome-oriented environmental and social standards (p 25)

The APPETIT Living Lab aims to work out ways of automating 80% of intermediary services and introducing new many-to-many IT-enabled sharing economy business models by 2026, enabling proliferation of self-sustaining local food markets across Poland (Serafin et al., 2023).

#### 5. Transition from Current to Desired situation

To move from the current to the desired or ideal situation, Poland must address:

- Policy Reforms: Simplify food safety regulations for small producers and redirect CAP subsidies toward SFSC infrastructure (Augère-Granier 2016).
- Financial Support: Establish in Poland a facility that draws on a planned EU-funded Agrifood Just Transition Fund (€4 billion/year) for investment digital tools and rural logistics (European Commission 2024).
- Technological Innovation: Scale and adapt blockchain for traceability and integrate Aldriven demand forecasting into platforms like APPETIT (Travaille and Hendriks 2010).
- Stakeholder Collaboration: Foster multi-actor partnerships (farmers, NGOs, policymakers) to co-design solutions, as demonstrated by APPETIT's peer-learning ecosystem (Van Veldhuizen et al. 2020).
- Consumer Engagement: Launch awareness campaigns using ethnographic insights (Werner and Schoepfle 1987) to shift consumer habits toward local, seasonal foods.

It is important to note that SFSC have only recently (2017) become a priority and part of the Polish Government's policy. In order to strengthen the position of farmers in the food chain in Poland, the Council of Ministers adopted on May 16, 2017 a document titled *Common Agricultural Policy after 2020 - Polish Priorities*, which states that: "Alternative distribution channels, including short supply chains, and local markets that increase farmers' participation in the value-added chain, foster the development of organic and traditional production, and strengthen the links between farmers and consumers should be supported more effectively."

The priority of family farms and the development of local agricultural markets as an integral part

of rural development is also included in the *Vision for the Polish countryside 2050*. For the purpose of preparing support programs for SFSC systems in the National CAP 2014- 2020 and the new National Strategic Plan for the CAP 2023-27 and National Recovery Plan (NRP), a general definition of SFSC systems was adopted based on EU Regulation 1305/2014, which refers to the creation or development of short supply chains within the meaning of point (m) of the second subparagraph of Article 2(1) of Regulation No. 1305/2013:

There is an assumption that in the coming years it is the **FOOD MARKET** that will shape the nature and place of agriculture in the Polish economy. State interventions aimed at making local markets more competitive and strengthening the position of the farmer in the food value chain will be of great importance. These are the assumptions of the Government of Poland's interventions that have been programmed in two key policy/programme documents:

- National Strategic Plan for the Common Agricultural Policy 2023-2027 (NSP).
- National Reconstruction and Resilience Enhancement Plan (NRP).

The issue of supporting and rebuilding local food markets for locally produced food has been included in the NRP, which in terms of content has already been approved by the European Commission. The NRP activities are categorised into **6 European pillars of responding to the crisis and building resilience:** 

- green transformation;
- digital transformation;
- Smart, sustainable and inclusive growth;
- Social and territorial cohesion;
- Health care and economic, social and institutional resilience;
- policies for the next generation, such as education and skills.

The NRP SFSC interventions are aimed at rebuilding small-scale processing, with farmers in leading roles. The first calls under the NRP have already been announced.

The streamlining and simplification of regulations governing small-scale processing and sales in Poland, which took place in 2017 with the introduction of a new form of agricultural activity - agricultural retail trade - has significantly changed the situation. Agricultural retail trade is a specific form of retail that is confined to farmers. Within the framework of this form of retail sales, it is possible for farmers to produce, process and sell their products directly to consumers, as well as to entities that sell directly to end consumers (e.g. stores, restaurants, canteens). With the introduction of agricultural retail trade, SFSCs became a permanent element of national policy on rural and agricultural development. Today farmers can legally process and sell food from their own farms, directly to consumers, who are assured of food safety as farmers have to be in compliance with sanitary regulation. The legal basis and requirements for farmers selling agri-food products directly to customers are now fully in place.

In recent years in Poland, a key program supporting innovation for rural and agricultural development has been the EPI-AGRI program. The program's priorities include "activities to develop and implement innovations in the creation or development of: - short supply chains (...) or local markets...". 200+ SFSC projects received funding, including research and implementation projects (Rural E-box, IQSell, Virtual Field) and implementation projects that have involved farmers from almost all over Poland.

An Agricultural Code Law has been proposed to consolidate regulations governing family farms

(i.e. farms up to 300 hectares, managed by the farmer and his relatives). An entire chapter in the law is devoted to short food supply chains and direct sales. Unfortunately, the law is still awaiting consideration by parliament and there appears to be insufficient support to enact the law.

Short food supply chains are seen as a way to increase demand and supply for authentic, tasty, fresh food products directly from farmers and small producers, to:

- · Improve access to fresh food and food culture.
- Increase security of food supply.
- Increase revenue for (small) farms and small processors.
- Protect the environment, biodiversity and oppose climate change.
- Contribute to the development of rural areas (by developing local markets, creating jobs, entrepreneurship, preventing exclusion).

In summary, current policies and programs for the development of short food supply chains have only recently become policy priorities (since 2017). They have been included as public interventions in the new programming period (i.e. 2013-27) in line with the focus on small-scale farming and non-industrial scale food processing in the vision of the Polish countryside for 2050.

Until 2017, small farms were absent from agricultural and rural development policies, which focused on supporting large-scale commercial-oriented farms in combination with large-scale agri-food processing. Until 2017, rural development was about creating non-farm jobs and supporting entrepreneurship.

Pilot projects in regions like Malopolska have demonstrated the potential of partnership brokering to organize smallholders into collaborative networks, improving market access and reducing costs (Brodziński et al. 2020). For example, local food systems in Kamienna Góra County leverage territorial proximity to strengthen rural economies, though challenges like fragmented production and consumer price sensitivity persist (Rosner and Stanny 2021).

To unlock SFSC potential, Poland must address structural inefficiencies (e.g., underdeveloped logistics for small-scale producers) and policy gaps (e.g., limited subsidies for direct sales infrastructure). Strengthening farmer cooperatives, investing in digital platforms for local markets, and aligning EU subsidies with SFSC goals could enhance farmers' agency (Józwiak et al. 2021).

Consumer education campaigns are needed to emphasize the health, environmental, and economic benefits of local food could drive demand (Krajewski 2021).

SFSC success would not only improve farmer incomes but also advance EU-wide goals for food sovereignty and green transition, positioning Poland's small farms—often seen as a vulnerability—as a cornerstone of sustainable, community-driven agriculture (Wilkin and Halamska 2022).

Key R&D challenges to harness the potential of SFSCs can be summarised as follows

• Economic Viability: Small-scale producers often struggle with financial sustainability due to limited production scales and market access (FoodUnfolded 2023). Collaborative models, such as farmer cooperatives, can enhance viability by pooling resources (CORENET 2025), but require effective stakeholder alignment (Van Veldhuizen et al. 2020).

- Logistics and Distribution: Efficient logistics are critical, yet small producers often lack infrastructure (Todorovic et al. 2018). Digital platforms like APPETIT (Serafin et al. 2023) and advisory services (Van Veldhuizen et al. 2020) offer solutions but demand technical literacy.
- Regulatory Barriers: Regulations designed for industrial systems burden small producers (Augère-Granier 2016). Collaborative advocacy efforts are needed to reform policies (Whatmore, Stassart, and Renting 2003).
- Consumer Awareness: Low demand for local products persists due to insufficient marketing (Giampietri et al. 2016). Ethnographic insights into consumer behavior (Werner and Schoepfle 1987) could inform targeted campaigns.

While stakeholder collaboration is vital to SFSC scaling and replication, it is not a panacea and requires investment in of itself. This is because success of organisational/business models require new approaches that provide:

- o Transparent Governance: Ensuring equitable participation (Van Veldhuizen et al. 2020).
- Conflict Resolution Mechanisms: Addressing power imbalances through advisory services (Van Veldhuizen et al. 2020) or ethnographic mapping (Werner and Schoepfle 1987).
- Sustainability: Avoiding overburdening participants while balancing idealism and pragmatism (Woodward and Hird 2021).
- Ownership: new forms of shared ownership

# 6. Who needs to do what to move from the current to ideal situation with SFSC?

Stakeholder	Actions	Resources Needed	Timeline
EU Institutions	Allocate CAP funds for SFSC infrastructure; enforce unfair trading bans.	CAP budget, regulatory frameworks	2025– 2027
Polish Government	Develop national SFSC strategies; invest in rural digital infrastructure.	EU funding, advisory services	2025– 2030
Local Authorities	Create SFSC hubs (e.g., Kraków's urban-rural partnerships).	Land grants, technical training	Immediate
⊫armare	Adopt agroecological practices; engage in APPETIT's co-creation processes.	Access to digital tools, peer networks	Ongoing
Consumers/NGOs	Advocate for local products; pressure retailers to prioritize SFSCs.	Social media campaigns, CSA memberships	2025– 2030
R&D	Enable and invest in organisational/business solutions for SFSC-powered local markets for locally produced food	EU programmes, espec. EPI-Agri, Horizon Europe, Interreg	2025-2027

Purpose: To build an sustainable, resilient and secure food system that prioritises small-scale farming, consumer health, and environmental regeneration.

Interests Served: Rural communities, smallholders, eco-conscious consumers, future generations.

#### 7. R&D Priorities

Recent 'state of the art' studies and projects highlight Poland's progress and challenges in SFSC development:

- Spatial Concentration: Drejerska and Sobczak-Malitka (2023) have drawn attention to the role of localized food systems in Poland's rural sustainability.
- Collaborative Models: The IQSell and CORENET projects have identified three SFSC archetypes for the purposes of proposing new forms of advising:
  - Individual Farmer-to-Consumer Models (e.g., farmers' markets), which prioritize trust
  - Farmer Collaboration, which enhances efficiency through sharing economy business models for logistics, financial transactions, marketing and billing.
  - o Producer-Consumer Collaborations (e.g., CSAs), fostering participatory governance (Chiffoleau et al. 2016).
- Digital Ecosystems: The APPETIT Living Lab is using a platform to embrace producers and consumers and other stakeholders digitally in order reduce transaction costs with scale (Serafin et al. 2023).
- Multi-Stakeholder Initiatives: The Food4CE project (Interreg CENTRAL EUROPE 2024) demonstrates how partnerships among farmers, NGOs, and policymakers can scale local food systems.

The state of the art ventures have raised R&D questions meriting further investigation:

Economic Viability and Scalability:	<ul> <li>How can small-scale producers enhance their financial sustainability within SFSCs?</li> <li>What innovative logistical solutions can be developed to improve the efficiency and scalability of SFSCs?</li> <li>How can digital platforms like APPETIT be optimized to reduce transaction costs and increase market access for small producers?</li> </ul>
Consumer Behavior and Awareness:	<ul> <li>What factors influence consumer preferences and behaviors towards locally-produced food?</li> <li>How can consumer awareness and demand for local products be effectively increased?</li> <li>What role do digital platforms play in shaping consumer perceptions and trust in SFSC?</li> </ul>

Regulatory and Policy Frameworks:  Environmental and Social Impact:	<ul> <li>How do existing food safety regulations impact the operation and growth of SFSCs?</li> <li>What policy changes are needed to support the development and scaling of SFSCs?</li> <li>How can regulatory frameworks be adapted to better accommodate the unique needs of small-scale producers?</li> <li>What are the specific environmental benefits of SFSCs compared to conventional food systems?</li> <li>How do SFSC contribute to the preservation of local biodiversity and reduction of carbon footprints?</li> <li>What social impacts do SFSC have on local communities, and how can these be measured and enhanced?</li> </ul>
Technological Integration and Innovation:	<ul> <li>How can digital platforms like APPETIT be further developed to support the diverse needs of SFSC?</li> <li>What are the potential benefits and challenges of integrating blockchain technology into SFSC?</li> <li>How can technology be leveraged to improve the traceability and transparency of local food systems?</li> </ul>
Market Dynamics and Competition:	<ul> <li>How do SFSC compete with large-scale, industrial food systems, and what strategies can enhance their competitiveness?</li> <li>What are the key market dynamics that influence the success of SFSC?</li> <li>How can SFSC create value propositions that attract both producers and consumers?</li> </ul>
Impact of Digital Intermediary Services:	<ul> <li>What are the specific impacts of digital intermediary services on the efficiency and effectiveness of SFSC?</li> <li>How do these services influence the relationships between producers, consumers, and other stakeholders?</li> <li>What are the best practices for implementing digital intermediary services in different local contexts?</li> </ul>
Organizational/Business Models:	<ul> <li>What organizational and business models are most effective for different types of SFSC?</li> <li>How can these models be adapted to different local contexts and scales?</li> <li>What are the key factors that influence the success of these models in enhancing SFSC sustainability and impact?</li> </ul>

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