

## Executive summary

The Estonian agricultural sector has experienced significant growth and structural change during the last 25 years, in particular since the country joined the European Union in 2004. High growth in agricultural production and productivity was achieved with relatively limited environmental pressure, taking advantage of abundant land and water resources. Agricultural production became more diverse in response to market and policy signals, as illustrated by the development of organic production. Most productivity improvements, however, occurred in larger farms, with smaller farms often lagging behind. Moreover, the food processing sector has not invested as much and adjusted as fast as primary agriculture, and is still struggling in terms of capacity and competitiveness, thus impeding the development of new markets and new products from agriculture.

Looking forward, the agri-food sector will have to keep adjusting to changing conditions, such as higher labour costs, CAP developments, more diverse demand, and climate change, which will provide both opportunities and challenges. The need to reduce greenhouse gas emissions for example is likely to affect livestock production and grassland. Responding to demand for diversified, healthier products can be an opportunity to develop new products, and improve the competitiveness of the Estonian agro-food sector. Maintaining the recent growth rates sustainably will require further innovation and adaptation.

Agricultural policy contributed greatly to the modernisation of Estonian agriculture. Within the EU framework, Estonia's implementation of the Common Agricultural Policy (and pre-accession schemes) generally supports productive investment to acquire modern technology to increase productivity and meet EU environmental and other regulations, while limiting market distortions. Specific policy measures also encourage more environmentally-friendly practices, which contributed to positive trends in the environmental performance of agriculture. Some areas for improvement remain, however, at the local level, and climate change may pose specific challenges for the livestock sector. It is crucial for agricultural policy to continue providing a long-term vision for the sector, which recognises the need to improve environmental performance while maintaining productivity growth.

The Estonian agricultural innovation system needs to become more participatory and responsive to facilitate further sustainable productivity growth. So far, it has played an important role in facilitating the diffusion of domestic and imported technological and other innovations facilitating sustainable productivity growth. High educational achievements in the Estonian population provide a fertile ground for innovation and growth. Estonian public research is strong, including in food and agriculture, but the contribution of private firms is limited. The government plays a strong role in the governance of innovation, and the approach to innovation remains largely top-down. More active participation of stakeholders in the Estonian agricultural innovation system, and stronger collaboration between public and private actors, at the national and international levels, would make the system more responsive to needs. Better information on challenges and opportunities for the sector is essential to guide private investment and policy decisions.

The general policy and regulatory environment is mostly supportive of investment. High quality public institutions have developed clear regulations and sound programmes within the EU framework. As a small economy, joining the single market has brought high benefits from trade and investment. Moreover, the policy environment is conducive to entrepreneurship and investment, with sound macro-economic fundamentals, low regulatory barriers by OECD standards, and well-developed financial markets in particular.

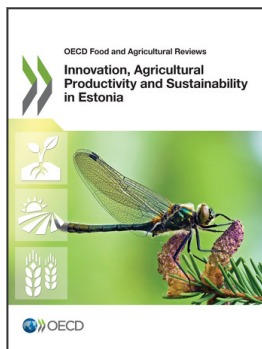
Improvements in infrastructure helped the agro-food sector by connecting people to markets and providing information and services for improved productivity and cost-efficiency. Infrastructure development and maintenance continues, with significant contributions from EU structural funds. Increasingly, infrastructure investments in Estonia also aim to improve environmental sustainability through the provision of renewable energy, or the development of resource-saving technologies. Providing infrastructure and services in remote rural areas remains, however, a challenge requiring innovative solutions, including through Information and Communication Technologies (ICTs).

A serious and growing challenge for food and agriculture is to attract and retain people, all the more as rural areas face labour and skills shortages. Mechanisms are in place to help agriculture-related education and training respond to the growing demand for skilled labour, such as the monitoring of future labour needs.

Main issues and policy recommendations are outlined in the table below:

Main findings	Key recommendations
<b>Incentives for private investment</b>	
Access to traditional export markets has been disrupted by the Russian ban on imports.	Promote a regional approach to trade diversification in order to gain new markets for agri-food products.
Agricultural loans have a higher risk premium on markets.	Promote risk management, through financial tools.
High taxes on labour increase labour cost.	Further reduce the taxation of labour earnings to facilitate employment in food and agriculture.
Environmental taxes and charges have increased, but do not always reflect environmental damages. Fuel used in agriculture is taxed at 27% of the standard rate.	Explore the scope for using environmental and agri-environmental taxes. Reduce gradually the tax rebate for fuel used in agriculture and encourage the use of renewable energy.
<b>Capacities and services</b>	
Estonia has a good potential for producing biomass from agriculture and forestry.	Develop green energy, and facilitate the development of bio-based products.
The drainage system is upgraded but requires maintenance, all the more with climate change.	Facilitate cooperation among land owners and farmers to improve the maintenance of the drainage system.
Rural areas face a declining population and shortage of skills.	Efforts to attract and maintain people in rural areas could include improving infrastructure connection, and services, providing information on employment opportunities, and facilitating relocation.
The number of Estonian students is declining overall and especially in agriculture and bioeconomy.	Attract foreign students in agriculture-related topics, by offering more courses in foreign languages and adapting them to demand.
<b>Agricultural policy</b>	
Implementation of agricultural policy supported investment to increase productivity and meet EU environmental and other regulations, while limiting market distortions.	Continue to limit distortions and develop support targeting for specific objectives; Promote risk management and strengthen risk management tools; Phase out national complements to Direct Payments.
Despite improvements in environmental performance some local issues remain.	Strengthen efforts by providing targeted advice on sustainable technologies and practices.
COP21 engagements may impose pressure on agriculture to reduce GHG emissions	Explore options for reducing GHG emissions from agriculture, in particular grazing livestock, and facilitate farmers' adaptation and relevant research.
The competitiveness of the agri-food sector remains low.	Develop a competitiveness strategy with the sector.
Stakeholders need to develop a strategy for responding to specific market demand (e.g. organic products) and for strengthening technological, organisational, and marketing innovation.	Make use of the opportunity given by the CAP to recognise Producer and Branch Organisations and support the participation of farmers or farmers' organisations in knowledge networks.

Main findings	Key recommendations
Estonia has strong Information and Communication Technologies (ICT).	Develop further ICT solutions to collect and manage data, reduce control costs and implement more targeted policies, and to improve traceability along the food chain. Explore the scope for using output-based agri-environmental measures with the help of ICT for monitoring outcomes.
<b>Direct incentives to innovation</b>	
The abundance of strategic documents, action plans, programmes and projects does not facilitate coherence.	Consolidate innovation and growth strategy documents to improve clarity.
The policy framework is driven by supply-side measures, with relatively little input from, or ownership by, the business community.	Better involve the private actors in policy dialogue on R&D and innovation policies at an early stage.
The approach to innovation is top-down.	Facilitate discussion among and between producers and the industry to enable them to contribute more effectively and efficiently to the agricultural innovation system.
The funding of R&D for agriculture fluctuates across programming periods and is highly dependent on short-term projects.	Improve the stability of R&D funding; Continue developing longer-term, larger scope project funding. Explore ways to complement public funding, for example from foundations or agricultural levies.
Maintaining good research infrastructure is essential for future progress and to maintain excellence and collaboration capacity at national and international levels.	Maintain and improve research infrastructure, including EU and regional networks. Explore further opportunities to share public infrastructure with the private sector.
The contribution of private companies to research is limited, in particular in the food and agricultural sector.	Identify areas where local companies and researchers could collaborate, e.g. through public-private partnerships, to develop local or niche products and innovation.
Skills for innovation in the system need to be upgraded continuously.	Encourage a diverse supply of advice that is accessible, including through ICT, and responsive to market demand, and goes beyond technical issues towards management, marketing, and sustainability improvements. Continue ensuring farm advisors are well-trained professionals with up-to-date skills.
Innovation and policy evaluation are becoming more complex and require a wealth of information.	Continue developing information systems, including market intelligence (big data) and research results



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