

## *Executive Summary*

Until recently, Japanese agriculture experienced a long period of contraction. Since 1990, the value of Japan's agricultural production has decreased by more than 25% and the number of commercial farm households and agricultural workers by more than 50%. The agricultural sector continues to be under pressure to raise its productivity, primarily to improve international competitiveness and thereby contribute to economic growth, in particular in rural areas. At the same time, intensive agricultural production contributes to a high level of environmental pressure.

Historically characterised by small-scale rice production, the structural transformation of Japanese agriculture towards more productive, profitable, and larger-scale farms has been a major policy goal. Today, rice represents less than 20% of the total value of agricultural production and a smaller number of large, often corporate farms are emerging. In 2015, the largest 3% of farms in Japan produced more than half of total agricultural output.

A smaller domestic market and declining labour force have important implications for Japan's economy, including in the food and agriculture sector. The country's working age population is expected to decrease by 41% by 2055, and the share of the population over 65 years is expected to increase to almost 40% over the same period. The aging population is most advanced in the agricultural sector, with 56% of farm managers over the age of 65.

Rapid economic growth in East Asia, however, is opening up market opportunities for Japanese agro-food products, and Japan's agro-food exports doubled between 2012 and 2018 (albeit from a small base). As agriculture becomes more technology and data intensive, Japan is well-positioned to develop a more technologically intensive agriculture domestically and, potentially, to expand its production networks for high value agro-food products, regionally and globally.

Innovation in agriculture increasingly depends on technologies that are developed outside agriculture. As this process of innovation becomes highly interactive among a growing and diverse network of stakeholders, the further integration of agriculture with other parts of the economy could enable Japan's agricultural sector to benefit from competitive technology and skills that prevail in other sectors. In Japan, agriculture has long been treated differently from other parts of the economy, based on the implicit policy assumption that government needs to support small-scale, resource poor family farms that would otherwise disappear. The evolution of the agricultural structure in Japan and the global trend towards more integrated domestic, regional and global value chains requires a shift in this policy paradigm towards measures that would promote innovation, entrepreneurship, and sustainable resource use.

To promote the integration of agriculture with other sectors, the role of private input and service suppliers will need to grow. At present, commercial banks play a relatively small role in agricultural finance. Agricultural co-operatives (known as JAs) provide integrated services for their members, including banking, insurance, farm input supply, and marketing. As such, JAs maintain a dominant position in certain input markets.

Competition between JAs and other players, however, could facilitate the development of alternative farm input and service providers that could better meet the specialised needs of professional farmers.

Improving the environmental performance of agriculture, and increasing its preparedness for more frequent natural disasters due to climate change, is key to ensuring the sustainable growth of Japanese agriculture. However, progress in reducing the environmental pressure from agriculture has been limited thus far. Japan should develop an integrated agri-environmental policy framework in which all producers commit to improving their environmental performance. Agricultural policy programmes should provide consistent incentives to adopt sustainable production practices and, where appropriate, impose penalties for non-performance. Subnational governments should play a greater role in implementing agri-environmental policy at the regional level, with the national government ensuring that all policies are coherent with national targets and agricultural policy programmes.

The types of policy support required by professional farms has also evolved. Although Japan has increased the role of non-commodity specific payments, most support to producers continues to be in the form of market price support that requires the production of certain commodities. Agricultural policy should shift away from directive policies that keep farmers in uncompetitive and low-income activities, and towards allowing them the freedom to make their own farm business decisions. Government policy should target producers' management constraints and business opportunities. For example, access to education and skills upgrading, specialised advisory services, and risk management instruments could be prioritised. In particular, farm managers need entrepreneurial and digital skills to develop integrated business plans and to develop links with value chains, making use of internal and external skills and resources. Making agricultural education and training more attractive and relevant is critical to attracting talent and to avoiding potential mismatches of skills in the agricultural sector.

Professional farms today have a greater capacity to engage proactively in agricultural research and development (R&D) and human capital development. Greater engagement of stakeholders in these areas would also make Japan's agricultural innovation system more demand oriented. Moreover, a further integration of agricultural R&D systems with general innovation systems, as well as removing the impediments to cross-sectoral and international collaboration would allow Japanese agriculture to benefit from technologies of other domestic sectors and foreign countries.

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### Key policy recommendations

#### Develop policy and market environments that are more conducive to innovation and entrepreneurship in agriculture

- Develop a more demand-oriented approach to exploit the diverse demand for Japanese agro-food products in overseas markets, including the international expansion of local production networks.
- Reduce the role of government credit support and increase the role of commercial banks.
- Ensure a level playing field between JA groups, and other agricultural input and service providers by enforcing the Antimonopoly Act and limiting cross-subsidies between financial and agricultural businesses in local JAs.
- Increase the linkage between farm management policy and wider policies focused on small and medium-sized enterprises (SMEs) to address the entrepreneurial needs of farms beyond agricultural production.
- Develop soft infrastructure to facilitate the digitalisation of agriculture and redesign the hard infrastructure to facilitate the adoption of new digital technology.
- Give farmers more freedom to make production decisions by phasing out commodity-specific support and progressively opening up to international markets.
- Enhance the role of farmers in managing normal business risk by lowering the threshold of revenue loss covered by policy programmes and consider introducing voluntary risk-management programmes.

#### Fully integrate environmental policy objectives in the agricultural policy framework

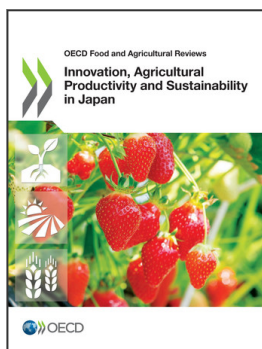
- Define agri-environmental policy targets at the national and regional levels based on a systemic assessment of the environmental performance of agriculture with the participation of a wide range of stakeholders.
- Expand the scope of environmental reference levels defined in the current environmental principle to a wider set of environmental issues, including climate change mitigation and biodiversity, and establish environmental targets and reference levels adapted to local ecological conditions.
- Increase cross-compliance conditions on producer support programmes with locally adapted reference levels of environmental quality and design an integrated agri-environmental policy at the subnational level.
- Better reflect the actual water use in paddy field on water use fees to improve the water use efficiency and include the long-term rehabilitation costs of irrigation system in order to balance the costs and benefits of the investment between current and future water users, and to maintain irrigation infrastructure sustainably.

#### Establish a more collaborative agricultural innovation system

- Focus public agricultural R&D on pre-competitive research areas with a medium- to long-term perspective and on areas that are not specifically tied to commercial production.
- Introduce co-funding schemes for agricultural R&D with producer organisations to reflect demand in R&D activities and to increase overall spending capacity for agricultural R&D investment.
- Increase funding for collaboration, and co-funding with the private sector, foreign researchers and institutions beyond the presently limited number of competitive research grant projects.
- Further integrate agricultural R&D systems with general innovation systems to promote cross-sectoral innovation.
- Clarify the role of national and prefectural agricultural research organisations and consolidate efforts in regional R&D at a broader regional level.

#### Enhance the capacity of farmers to innovate

- Strengthen the partnership between agricultural education and the agro-food industry, including more participation of professional farms in teaching activities and funding.
  - Reorient the curriculum of vocational education in agriculture to develop the skills required of farm managers, provide more structured opportunities for learning, and develop training programmes that combine lectures with work experiences.
  - Consolidate prefectural agricultural colleges at a broader regional level to pool resources and develop a unique and specialised agricultural education that is adapted to regional conditions. This should be accomplished in partnership with the private sector.
  - Focus the role of prefectural extension services in areas of public interest, such as promoting sustainable production practices and giving advice on compliance with regulations and government policy programmes; expand the role of private advisory services.
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