

Chapter 6. Human capital development in Japan's agriculture

Empowering people to innovate is one of the five priorities for government action identified in the OECD Innovation Strategy. People generate ideas and knowledge that power innovation, and they apply this knowledge and the resulting technologies, products and services in the workplace and as consumers. Innovation requires a wide variety of skills, as well as the capacity to learn, adapt or retrain, particularly following the introduction of radically new products and processes. Fostering the skills of farmers to innovate, to solve new problems and to engage with other stakeholders is at the heart of AIS and the improvement of education and training enables AIS to function effectively. Empowering people to innovate relies not only on broad and relevant education, but also on the development of wide-ranging skills that complement formal education. This chapter presents an overview of the development of agricultural education, extension and advisory system in Japan, and of the agricultural policies currently in place.

6.1. Changing skill needs for agriculture in Japan

Agriculture in Japan has been suffering from an ageing farm population and lack of interest among younger generations to farm as a profession. The rapid retirement rate of many older farmers over the last decade has nevertheless created opportunities for young farmers to expand their operations and bring fresh capital to the sector. Large, corporate farms have also increased their role in agriculture, including in rice farming. Unlike traditional family farms, the management of corporate farms often separates day-to-day agricultural production operations from farm management decisions, and experts in various fields such as agricultural production, processing, marketing, IT and financial and human resource management are regularly hired.

The skills and qualifications required today for a farm manager are very different from those of the past and will continue to evolve with the rapidly changing economic, technological and social conditions around agriculture in Japan. Innovative farming technologies require greater professional skills and call for new capacities if farmers are to work effectively. With the development of modern agricultural value chains, farm managers are increasingly required to acquire entrepreneurial and digital skills in order to develop integrated business plans beyond agricultural production; this includes making use of external resources such as professional farm advisory services.

Innovation in agriculture today is increasingly dependent on technology and skills from other sectors, thus requiring that farmers collaborate with a diversity of public and private stakeholders. The capacity of the food and agriculture sector to innovate also depends on its ability to attract skilled labour. Improved remuneration and working conditions in agro-food jobs, relative to competing sectors, is an important factor, but this sector must develop policy and market conditions that are in favour of entrepreneurship.

Despite the mechanisation of major farming operations, the sector depends on seasonal labour. There is a clear shortage of skills and labour in Japan as evidenced by the more than 1.6 job offers per job applicant since May 2018. The 2015 Manpower Talent Shortage Survey found that 83% of Japanese employers struggled to fill vacancies, the highest level among the 42 participating countries, for which the average was 38% (ManpowerGroup, 2015^[11]). Due to the high competition with other sectors, meeting temporary labour demands has become a major constraint (Box 6.1).

Box 6.1. Perception of challenges and opportunities by Japanese farmers

In 2017, MAFF conducted an online survey on how farmers less than 50 years old managed their agricultural business and their expectations for the future. When asked what problems they faced (multiple answers allowed), 47% of respondents identified manpower shortages as the biggest problem, followed by inadequate selling prices relative to the product quality. Lack of technical skills (32% of respondents replied) ranked fourth amongst all farmers, but first among crop farmers. New farmers tended to lack technical skills or faced difficulty in financing, and labour shortages become more problematic when they expanded their farm operations.

Another question (multiple answers allowed) focussed on future business strategies. Increasing yields was most frequently cited as the preferred strategy (71% of respondents), followed by improving quality and branding (53%). Introducing IoT and other emerging technologies, and collaboration with other industries become more important the larger the farm size.

Source: MAFF (2018^[21]), *Annual Report on Food, Agriculture and Rural Areas in Japan FY 2017*, <http://www.maff.go.jp/e/data/publish/attach/pdf/index-93.pdf>.

The mismatch between supply and demand of skills limits the capacity of the sector to develop and uptake innovation. Responding to the evolving need for skilled labour in modern agriculture requires retraining and regular adjustment of agricultural education and training programmes. In this process, some countries tried to identify the skill priorities in the sector with the participation of stakeholders. For example, Australia has implemented since the late 2000s a series of initiatives to improve the quality of agricultural technical-vocational education and training to meet the demands of the labour market. The Australian agro-food industry also announced its skill priorities and strategies for action (Box 6.2).

Box 6.2. Australia's initiative to identify skill priorities and strategies in the agro-food sector

The level of available skilled labour supply in the agro-food industry is a continuing concern in Australia. For example, in general only 75% of vacancies are filled in agriculture and horticulture occupations and in 2013-14 of a total of ten applicants per vacancy, only two were suitable for the proposed vacancy.

Agrifood Skills Australia, one of 11 Australia's Industry Skills Councils mandated to link the industry and educators, released the agro-food industry's vision of skill priorities and strategies for action. This is a broad framework spanning from business capacity to jobs and the promotion of skills. It seeks to attract a new skilled generation, enhance and make better use of the knowledge and skills of the existing workforce. In addition to issues common to many sectors, this framework emphasises the need to tackle the specific challenge of encouraging students to opt for agro-food careers. It also stresses the importance of exploiting the potential of on-the-job training through informal education, reflecting the important role of acquired knowledge in agriculture.

Source: OECD (2015^[3]), *Innovation, Agricultural Productivity and Sustainability in Australia*, OECD Food and Agricultural Reviews, OECD Publishing, Paris, <https://doi.org/10.1787/9789264238367-en>.

6.2. Agricultural education

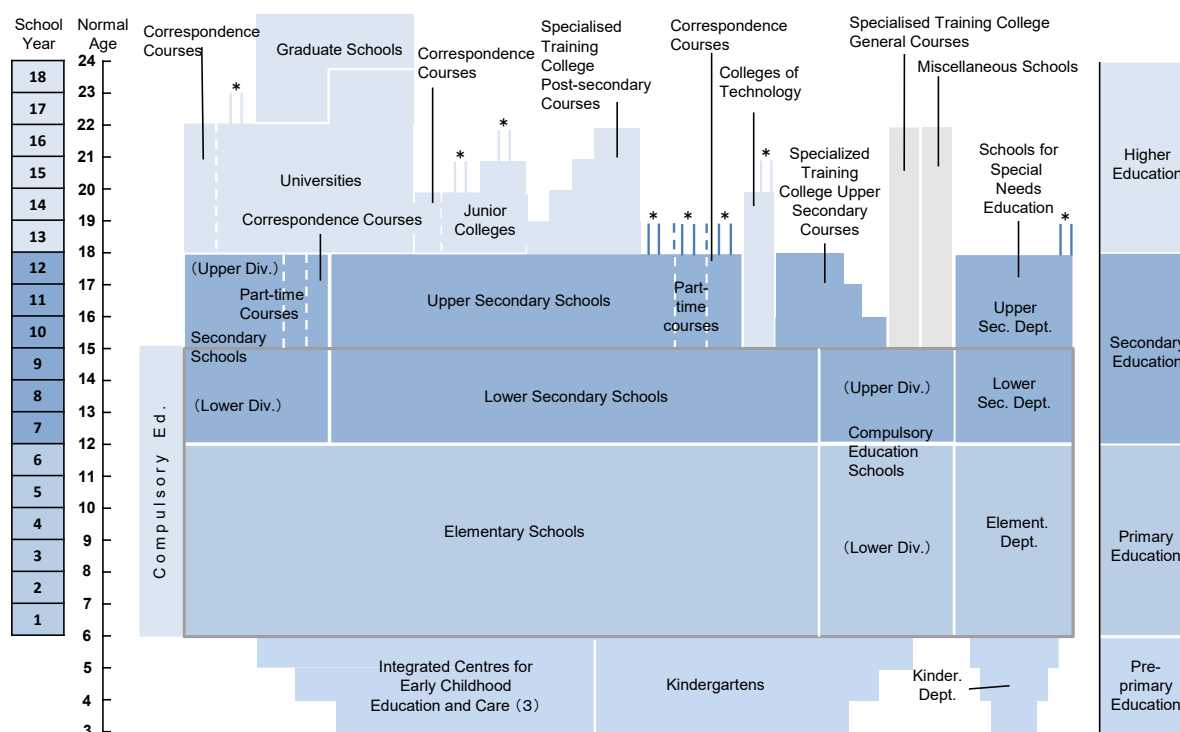
Overall, Japan achieves high levels of performance and equity in education. In the OECD Programme for International Student Assessment, it continues to rank in the top performing group in reading, and scientific and mathematical literacy. The high ratio of students who complete higher education leads a large number to join the intellectual labour force.

Japan is a top performer in developing skills, but falls short in using those skills at work, an important aspect of a country's economic growth and productivity. Japan ranked first in the OECD Survey of Adult Skills in both literacy and numeracy of workers, while use of reading skills in the workplace is close to the OECD average, and use of numeracy skills is below average. The results of the survey underline the need to move from a reliance on initial education to fostering lifelong, skills-oriented learning (OECD, 2013^[4]). While more than two-thirds of Japanese workers believe they need training, the survey finds that participation in lifelong learning in Japan is in the bottom quartile of countries.

Moreover, the share of workers in Japan who find education and training useful for their job is much lower than the OECD average (OECD, 2018^[5]). Only 18% of Japanese believe that school helped them develop initiative and an entrepreneurial attitude, the lowest ranking among OECD countries and well below the OECD average of 52% (OECD, 2013^[6]). Japan's educational system is presently in transition towards developing

competency, and mobilising the necessary knowledge, skills, attitudes and values in order to meet today's complex demands beyond acquisition of knowledge and skills (OECD, 2018^[7]).

Figure 6.1. The education system in Japan



Notes: 1. * indicates specialised courses

2. Higher education schools, secondary education school/latter period courses, universities, junior colleges, and special needs schools can have separate courses with course terms of 1 year or more.

3. A child aged from 0 to 2 years old can attend the centre because it functions as school and child welfare.

4. Age and admission requirements for Specialised Training College General Courses and Miscellaneous Schools are not defined uniformly.

Source: MEXT (2019^[8]) *Principles Guide Japan's Educational System*,

<http://www.mext.go.jp/en/policy/education/overview/index.htm>.

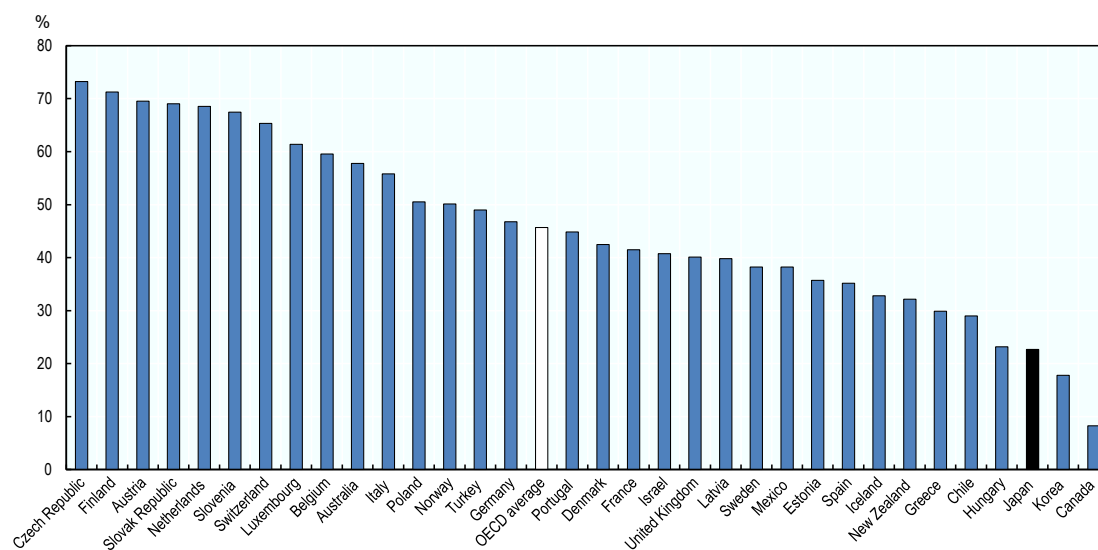
The Japanese educational system emphasises general education, and the share of agriculture, forestry, fisheries and veterinary subjects in upper-secondary education is the highest among OECD countries (OECD, 2018^[9]). However, education in agricultural high schools and agricultural faculties at universities or junior colleges is not necessarily oriented towards developing skills of future farmers. In most cases, the mission of agricultural high schools is to provide a wide-ranging education related to agriculture. Agricultural university faculties teach agricultural sciences. The share of graduates from agricultural high schools and agricultural faculties in universities or junior colleges employed in the farming and forestry sector was around 3% in 2016 (Table 6.1).

Table 6.1. Share of graduates entering the farming sector by agricultural educational institution in Japan, 2016

	Agricultural High Schools	Prefectural Agricultural Colleges	University (incl. junior college)
Number of schools	303	42	63
Number of graduates	26 856	1 741	22 891
Share of graduates employed in farming, %	3.0	57.1	2.8

Source: MEXT (2016^[10]) *School Basic Survey 2016* (database), <https://www.e-stat.go.jp/stat-search/files?page=1&toukei=00400001&tstat=000001011528>; National Council of Agricultural Colleges

The role of vocational education is, however, relatively minor with the share of students in vocational programmes in all upper-secondary education (23%) being around half the OECD average (Figure 6.2). Graduates from agricultural vocational institutions account for only 5% to 10% of new farmers aged less than 49 years.

Figure 6.2. Share of students in upper-secondary vocational programmes in OECD countries, 2015

Note: The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD (2017^[11]), *Education at a Glance 2017: OECD Indicators*, <https://doi.org/10.1787/eag-2017-en>.

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In Japan, it is primarily prefectural agricultural colleges which provide vocational education although several private institutions offer a vocational education for future farmers. There is an agricultural college in all but five prefectures. These 42 agricultural colleges offer two-year programmes for high school graduates that combine classroom lectures and practical field training. The majority of graduates become farm workers upon graduation. In the past, the majority of graduates entering the farming sector returned to their family farms, but as more students were from non-farming families, graduates now become more often farm employees.

Prefectural agricultural colleges were developed as part of the prefectural extension system and follow MAFF guidelines for prefectural extension services. Teachers are often

extension officers rather than farming practitioners. Field training is provided in co-operation with the public extension services, prefectural research stations, and farms. The curriculum of these colleges focuses on the acquisition of agricultural production techniques.

The core direction in improving the vocational education system is towards developing the necessary technical and management skills to undertake innovative strategies. This would allow farmers to adapt to new environments, solve new problems, and collaborate with a diverse network of stakeholders. It requires educational programmes that reflect the technological, economic and environmental changes that are currently underway, as well as taking into account current demand from the industry and consumers. According to the OECD, an effective vocational system would include: meeting the needs of the labour market; providing good core academic skills; and the integration of work-based learning (Box 6.3).

Box 6.3. Selected key characteristics of effective vocational systems

Policy recommendations stemming from OECD work on vocational education and training at upper-secondary level include the following characteristics to ensure an effective vocational educational system:

How the mix and content of vocational programmes are determined

- Mechanisms to ensure that the mix of vocational provision corresponds to the needs of the labour market.
- Ensuring that adequate core academic skills, pertaining especially to literacy and numeracy, are built into vocational programmes.
- Good upper-secondary level of vocational qualifications allows for a greater access to higher-level vocational and academic programmes.

How vocational skills are imparted to learners

- High-quality apprenticeship systems covering a wide range of professional domains and including high-level apprenticeships.
- Work-based learning systematically integrated into all vocational programmes.
- A vocational teaching workforce that offers a balance between teaching skills and up-to-date industry knowledge and experience.

How skills are assessed, certified and exploited

- Qualifications developed with actors from the labour market.
- High-quality assessments of vocational skills built into qualifications.
- Effective competence-based approaches, including both professional examinations and recognition of prior learning.

Policies, practices and institutions that underpin vocational education and training

- Vocational programmes should be developed in partnership with government, employers, and trade unions.
- Effective, accessible, independent, proactive career guidance backed by solid career information.

Source: OECD (2014^[12]), *Skills beyond School: Synthesis Report*, OECD Reviews of Vocational Education and Training, <https://doi.org/10.1787/9789264214682-en>.

In 2019, a new four-year professional and vocational university and two or three-year professional and vocational junior college was introduced with the aim to establish tertiary institutions providing vocational education in partnership with industry and local communities. The standard for professional colleges requires that more than 40% of full-time teachers must be practitioners and the curriculum must include internships. This system intends to provide a model of dual education to allow students to learn about their profession in school while gaining practical work experience. Agriculture is one of the main industries where this new educational orientation is in place.

Country experiences have shown that proactive industry engagement is key to meeting the needs of the labour market in agricultural vocational education. For example, the Human Capital Agenda developed in the Netherlands is an integral part of the country's R&D strategy to become more involved and responsible for developing agribusiness in the areas of education and skills development, and to attract a sufficient number of students at various levels to ensure an adequate future supply of qualified employees in agriculture and horticulture. *Green Education* in the Netherlands promotes agri-food careers that emphasise opportunities for high-skilled and knowledge-intensive jobs and attracts interest from a broader range of students who do not have a rural background (Box 6.4).

Box 6.4. Netherlands: Developing a green education

Agricultural education in the Netherlands is embedded in the so-called *Green Education* (agriculture, nature and food) which is organised in close co-operation with the agro-food private sector. Secondary education includes pre-vocational secondary education programmes (four years) that combine general and vocational education and prepares students for senior secondary vocational education and training (four years). Higher education is provided by two types of institutions: research universities and universities of applied sciences. Research universities are primarily focused on research-oriented programmes, while universities of applied science offer programmes to prepare students for specific professions.

The *Human Capital Agenda* was developed as a part of the Netherlands R&D strategy. It aims to achieve greater involvement and responsibility on the part of agribusiness in education and skills development, and to attract sufficient students at various levels to ensure there is an adequate supply of qualified employees in agriculture and horticulture. The Human Capital Agenda identified three important themes: improving the sector's image and being a good employer; developing a job-oriented curriculum; and promoting life-long-learning. To stimulate the involvement of agribusiness, the stakeholders co-finance vocational education. In return, tools, trainings and internships are provided, and students and teachers undertake projects (e.g. research) for their agribusiness partners

Methods to deliver education are also changing: life-long learning and distance learning programmes are developing rapidly, allowing for a larger potential student base. The need to focus vocational education on entrepreneurship and managerial training is also increasingly recognised.

Source: OECD (2015^[13]) *Innovation, Agricultural Productivity and Sustainability in the Netherlands*, *OECD Food and Agricultural Reviews*, <https://dx.doi.org/10.1787/9789264238473-en>.

Providing continuous education is an important opportunity for farmers to acquire new industry knowledge and technology. Although Japan has strengthened continuing education, adult participation in education remains lower than for most OECD countries (OECD, 2018^[9]). In agriculture, prefectural governments have started to offer agricultural management seminars to teach marketing, organisational management, and financing. The courses often invite managers from other industries, tax advisors, management consultants,

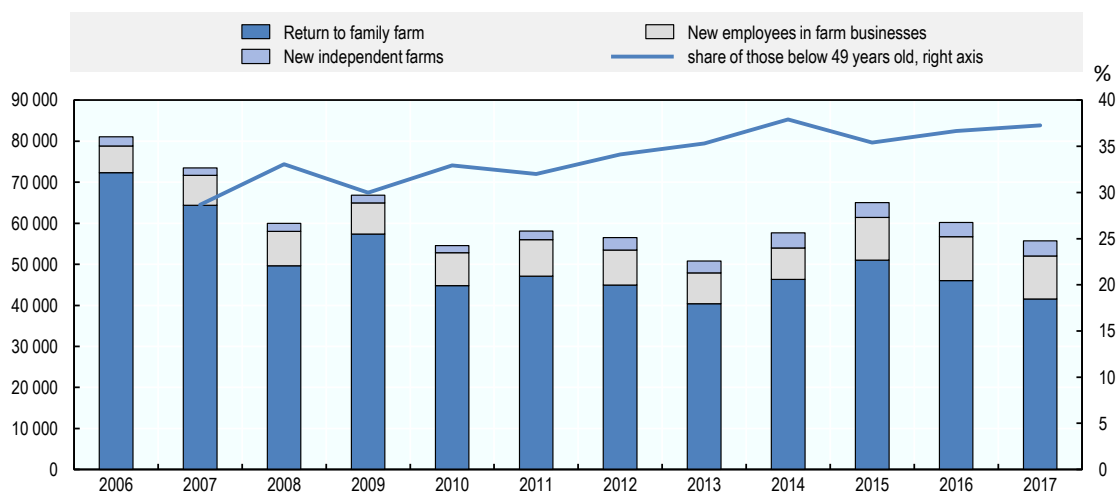
and university professors. In FY2018, 25 prefectures offered such seminars. In addition, a publicly-funded SME University with nine campus across Japan offers training opportunities for SME managers and employees. Local universities sometimes offer continuing education programmes in agriculture with a view to developing the potential of regional leaders and innovators.

6.3. Policies to support new entrants and farm succession

The number of farm workers exiting the agricultural sector in Japan exceeds that of new entrants, leading to an overall decline in the number of agricultural workers. Labourers returning to family farms account for close to 80% of new entrants (Figure 6.3), but the majority are more than 60 years old, implying that they start farming after their retirement from non-farm jobs. Nevertheless, the number of new entrants to agriculture who were less than 49 years old exceeded 20 000 for four consecutive years, that is from 2014 to 2017.

Employment in corporate farming is main driver for the increase in young new entrants. In 2017, 43% of new entrants aged less than 39 years were employees, creating a channel for young workers with no agricultural background to enter the sector. The number of new entrants establishing farms also increased, but the share was less than 7% in 2017. It is expected that farm employees will become independent farmers once they have acquired farm management skills.

Figure 6.3. Number of new entrants to farming in Japan, 2006 to 2017



Source: MAFF (2018^[14]), *Survey on new farm entrants*, <http://www.maff.go.jp/j/tokei/kouhyou/sinki/>.

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Policies to support new entrants to farming

The government has strengthened policy measures to promote new entrants to the sector. Advisory centres were established at the prefectural level to introduce a variety of ways to become a farmer. In 2012, MAFF introduced two types of financial support for new entrants. One programme pays JPY 1.5 million (USD 13 400) per year to those who plan to enter the sector before the age of 50, providing one to two years of training in a prefectural agricultural college. The second programme pays up to JPY 1.5 million

(USD 13 400) per year for a maximum of five years to support the income of new farmers who are less than 50 years. This programme is available to who take up the family farms and who seek to improve and modernise their operation. New entrants are required to submit their business plan and obtain certification from the local municipality. Certified new entrants are eligible for interest-free credit from the JFC to finance the initial cost of investment.

MAFF has also developed a farm employment aid programme for new entrants. Under this programme, the employer can apply for financial support for new employees on the condition that they provide him/her with sufficient on-the-job training for up to two years. To be eligible, new employees must be: under 50 years of age; have no or limited farm work experience over the last five years; and have no kinship with the employer.

Measures to facilitate a smooth farm succession

Japan's tradition of inheritance based on primogeniture with priority for the male child was applied to the succession of family farms. However, Japanese civil law guarantees equal rights of inheritance to all heirs. To avoid the subdivision of farms, inheritance or gift tax is exempted, in principle, if one heir inherits the farmland and continues to farm for 20 years after the inheritance transfer. However, this discouraged heirs from renting out their land during the 20-year period as they would be liable for the deferred inheritance or gift tax. In 2009, this system was revised so that these heirs could benefit from the exemption from inheritance and gift tax even if they rented the land, as long as the land located outside the urbanisation promotion areas, remained farmland during their lifetime.

Since 1970, Japan maintains an additional pension scheme for farmers that encourages early farm retirement by paying a 50% premium on the basic indemnities when a registered farmer to that scheme retires from farming between the ages of 60 and 65, and transfers the farm assets to his/her successor. However, as this scheme was designed as a pay-as-you-go system, it became financially unsustainable and in 2002 was transformed into a defined contribution system. Farmers certified by the municipality presently benefit from monthly government contributions which match equally their own contributions over a maximum period of 20 years.

6.4. Extension and advisory service

Agricultural extension and advisory services can help improve the production and management skills of farmers. Extension services serve as a broker for technology and practices that facilitate the adoption of innovations and knowledge at the farm level. In many countries, reforms of public extension services have led to the emergence of mixed advisory systems in which a broader range of actors provide services. Private companies, non-governmental organisations, and producer organisations currently play more active roles alongside traditional public sector extension providers (Box 6.5). This is highly relevant as farmers differ in their resources, gender, market access, crops and livestock systems, and thus require different types of information and services to achieve sustainable productivity growth.

Box 6.5. International comparison of farm advisory services

Farm advisory services vary between countries and often include many public and private service providers, allowing farmers to choose which service they will avail to (Table 6.2). The role of government varies from being the main funder and provider, such as in Japan and Korea, to co-funding and guiding services managed by independent organisations, such as is the case in Estonia. In some countries, farmer organisations play an important role in providing advice with farmers paying either collectively or individually for the services received. In the Netherlands, the national advisory system was privatised and replaced by diverse private providers. Consulting firms can also play a major role in some countries, in particular for specialised knowledge such as management and ICTs. Small subsidies are available to farmers to access services.

Table 6.2. Characteristics of advisory services

	Main institutions	Source of funds	Countries
State-run	Public organisations at regional and national level	Wholly financed from public funds	Brazil for smaller farms, Colombia, Japan, Korea, Sweden, Turkey, United States
Public-Private Service	Increasingly provided by private consulting firms	Farmers partly or wholly pay for services; centralised and decentralised	Canada, China, Estonia, Australia, United States
Farmers' Organisations	Farmers' organisations	Membership fees and payments by farmers	Australia, Canada, Colombia, United States
Commercial	Commercial firms or private individuals	Payment through project implementation or grants	Netherlands, commercial farms in Brazil, Turkey, United States

Note: Several systems can co-exist in the same country.

Source: Adapted from OECD (2013^[15]), *Agricultural Innovation Systems: A Framework for Analysing the Role of the Government*, <https://dx.doi.org/10.1787/9789264200593-en>; OECD (2015^[16]), *Fostering Green Growth in Agriculture: The Role of Training, Advisory Services and Extension Initiatives*, <https://dx.doi.org/10.1787/9789264232198-en>.

Advisory services provided by participants in the agro-food value chain – such as agricultural input suppliers, or buyers of farmers' produce – are often embedded services, that is where advice is given when a farmer buys a product (e.g. pesticides, fertilisers). Contract farming is a potentially effective way to deliver expertise to farmers, especially in supply chains with a high degree of vertical integration that requires compliance with standards needing the correct application of inputs as well as entrepreneurial capacities. In many OECD countries, commercial farm advisory services have evolved over time.

In Japan, the prefectural government and local JAs deliver technical advisory services free of charge, but a commercial farm advisory service is rare, except in the livestock sector where a variety of specialists provide paid management and production advice.

Traditionally, prefectural agricultural research centres developed breeding and farming techniques, and agricultural extension offices in each prefecture incorporated them into farming. MAFF provides guidelines for agricultural extension services and controls the quality of the prefectural extension advisors. Prefectural extension advisors need to pass a MAFF qualification examination. Prefectures receive subsidies from the national government that cover 5% of the cost of agricultural extension services. The number of agricultural extension advisers and expenditure for extension services decreased by around 30% over the last 20 years, and extension service offices decreased from 510 to 360

between 1998 and 2018. Local JAs provide technical advisory services to its members. In 2016, JAs had 13 750 farm advisors, double the number of prefectural agricultural extension advisors. It also sets its own standards for technical advisors.

The public agricultural extension services in Japan were originally established to financially help disadvantaged small family farms to acquire modern production techniques developed by public research stations and to improve their livelihood through housing, nutrition and health advice. Although extension services continue to play such a role, they face difficulties to respond to the diverse and specialised technological needs of today.

In 2012, MAFF introduced a system of agricultural innovation support experts to respond to the technical needs of advanced professional farmers. These experts are also expected to increase the level of partnership between research and educational institutions and the government. All prefectures established an agricultural innovation support centre and a total of 609 agricultural innovation support experts were appointed in 2018 from amongst the prefectural extension advisors having a high level of technical knowledge and co-ordination capacity. Similarly, the JA group strengthened its technical advisory service to advanced professional farms. Specifically, it promotes the Team for Agricultural Co-ordination which establishes ties with leading farmers, gathers information, and provides solutions for their needs.

Establishing a demand-driven advisory service that mixes both public and private services would facilitate the effective adoption of evolving technologies at the farm level. In a pluralistic setting, effective coordination assures a good mix of services to meet the diverse demands and needs of farmers. Privatisation of services can strengthen the efficiency and effectiveness of extension and advisory services.

For example, the Netherlands privatised its public advisory system and there is no evidence that this resulted in an inadequate supply or insufficient access to services. The government also supports farmers' access to training, extension, innovation brokerage, and advisory services. The privatisation of extension services transformed smaller operations with limited innovative capacity into firms that were larger in scale, more knowledge-intensive, and with stronger innovative power; these firms have become better at articulating their demand for knowledge. Farmers hiring advisors are more critical on getting value for money and request specific advice, e.g. on legal issues or farm expansion, and this has given room to new specialised entrants in the advisory business, leading to increased competition. Increasingly specialist advisors participate in network projects which allows them to stay up-to-date and maintain contact with farmers.

The government in the Netherlands continues to have a role in co-ordinating pluralistic advisory systems so that the activities, and scope and scale of the different service providers are aligned and inclusive; the quality of services is assured; providers are accountable; farmers are able to influence advisory services; and lessons learned are shared among service providers. In particular, the government needs to ensure the provision of extension service which private service is unlikely to offer such as environmentally friendly production practice, services in geographically disadvantaged area and compliance with regulation and policy requirement. For example, the EU Farm Advisory System is mandated to help with cross-compliance conditions attached to the payments (Box 6.6).

Box 6.6. Farm advisory services in EU Member States

As a condition to receiving direct payments under the CAP, EU farmers are required to comply with specific standards of good agricultural and environmental management, and with certain regulations on the environment, animal health and welfare. Since 2007, the Member States have been legally obliged to set up a national Farm Advisory System (FAS) with the broad objective to help farmers meet cross-compliance standards. In around half of the Member States, the FAS is set up as a specific service, complementing existing extension services; in the others, the FAS has been integrated with existing services. Agencies delivering the service to farmers are selected by calls for tender in 14 Member States, and by designating private or public providers (five Member States in each case).

A farmer's first contact with the FAS is usually via telephone help lines, but on-farm one-to-one advice is the approach most widely adopted, complemented by on-farm small group discussions. Computer-based information tools and checklists are used in several countries. One-to-one on-farm advice is provided free of charge in some countries, others require the farmer to contribute to the costs (this varies from 20% to 100%). Although raising farmers' awareness of cross-compliance standards is the main purpose of the FAS, Member States can choose to include advice on other issues. Around half do so, offering advice on broader issues such as the competitiveness of the holdings, the environmental impact of farming practices, and support for implementation of rural development measures such as agri-environmental contracts.

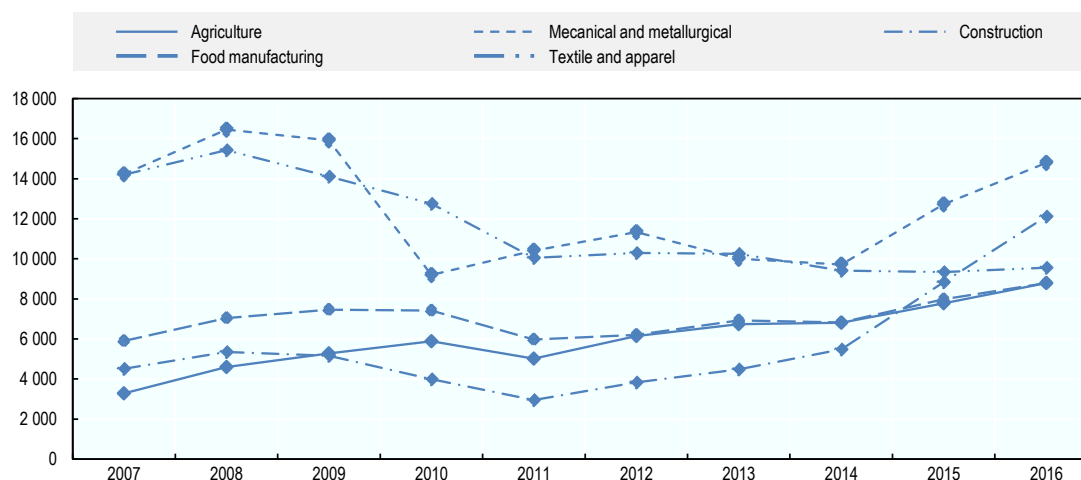
Source: OECD (2015^[16]), *Fostering Green Growth in Agriculture: The Role of Training, Advisory Services and Extension Initiatives*, <https://dx.doi.org/10.1787/9789264232198-en>.

6.5. Labour market policy

The Labour Standards Act sets minimum standards for working conditions. However, it does not apply to family labour and agriculture is excluded from the minimum standards of working hours, break time, holidays, and extra pay due to the nature of agricultural work. The government, however, encourages family farms to form "Family Management Agreements" to clarify working conditions and the share of farm management responsibility.

Large commercial farms are increasingly dependent on hired labour. Among commercial farms with more than JPY 30 million (USD 248 000) of sales, 72% hired labour and 48% employed regular labour, on average 3.4 persons in 2015. Under the current system, participation in labour and social security is mandatory for incorporated farms or family farms hiring more than five people, including temporary workers. Securing competitive working conditions that are comparable to those of other industries has become vital if farm operations are to retain their human resources.

Foreign workers account for 2% of Japan's labour force, among the lowest of OECD countries, but reliance on foreign agricultural workers has increased in the food and agriculture sector. In principle, Japan's immigration policy does not accept unskilled labour in any sector. It did, however, introduce in 1993 a technical training programme for foreign interns to transfer skills, technologies and knowledge to developing countries. This programme is meant as an international co-operation programme and not as a measure to respond to labour shortages in Japan. The number of foreign workers (including trainees) exceeded one million for the first time in 2016, up from 0.7 million in 2013. Agriculture and food manufacturing are two of the major sectors accepting foreign interns (Figure 6.4).

Figure 6.4. Foreign technical trainees in Japan, by main job category, 2007 to 2016

Note: The number includes only those qualified for more than one year of training.

Source: JITCO.

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The foreign technical intern training programme offers employment contracts with corporations under the supervision of non-profit organisations, such as business associations. The employer must prepare a training plan for trainees to acquire or enhance skills that would be difficult to master in their home countries. The training period is a maximum of five years. Agricultural work eligible for the training programme beyond the second year of training is limited to facility horticulture, field crops and vegetables, fruits, swine, poultry, and dairy. Despite the objectives of the programme, some farm operations depend on these foreign trainees, although this is limited given the requirement to hire trainees for the entire year.

The foreign technical intern training programme was revised in 2017 to strengthen the supervision of training and to protect trainees. The revision also extended the maximum training period from three to five years and expanded the quotas for technical interns accepted by well-performing supervising organisations and firms.

Japan introduced a new scheme in 2017 to place foreign agricultural workers in National Strategic Special Zones. Under this scheme, a human resource company accepts foreign workers and sends them to farms. They can stay up to three years, but are allowed to engage in agricultural support activities only during busy farm seasons and leave Japan during the off-season. This scheme is expected to provide a solution for seasonal labour needs in agriculture. In 2019, the government also introduced a new residential status to allow foreign workers in certain industries, including agriculture, to stay for up to five years as long as they successfully pass both occupational and language proficiency tests. These tests are waived for people who have completed a technical training programme; in this case, they can now stay for up to ten years. Under this residential status, the government expects to accept 345 510 foreign workers over the period 2019-24 in 14 sectors, including agriculture.

6.6. Key points

- Attracting skilled labour to agriculture requires making agricultural industries more appealing and conducive to innovation and entrepreneurial opportunities. Skilled labour from different education backgrounds can also enrich the innovation process in the sector. More entry of private service providers, such as technical advisory services, would enhance skill supply in the sector.
- The skills and qualifications required of farm managers in Japan evolved with the rapidly changing technological conditions around agriculture and agro-food value chains, and with the structural move towards business-oriented, corporate farms. Farm managers increasingly need entrepreneurial and digital skills to develop integrated business plans beyond agricultural production, making use of both internal and external human capital and knowledge resources for farm management.
- A mismatch between supply and demand of skills limits the capacity of the sector to develop and uptake innovation. Responding to the evolving need for skilled labour in agriculture requires retraining and regular adjustment of education programmes that reflect industry demand.
- Making agricultural education and training more attractive and relevant can play a critical role in drawing talent and resolving potential mismatches of skills in the labour market. Continuous learning is necessary to allow farmers to keep up-to-date on new technologies. More iterative co-creation and co-development processes that involve multiple stakeholders are necessary to identify skill needs in agriculture and to improve the agricultural education system in Japan.
- Currently, prefectural agricultural colleges are the main provider of vocational education in agriculture. However, they do not necessarily attract the most qualified and enthusiastic students who wish to be future farm managers. They also face difficulty in adjusting their education and training programmes to the more diversified and specialised skill requirements in Japan's agriculture today.
- Strengthening partnerships with the agricultural industry would allow agricultural colleges to expand their capacity and meet the labour-market needs more effectively, for example through more systematic participation of professional farms and agro-food industries in teaching and funding.
- Agricultural colleges are established at the prefectural level, as part of the prefectural extension system makes it difficult to respond to the diversified and specialised needs of professional education in agriculture. Consolidation at a wider regional level would allow agricultural colleges to pool their resources and provide more unique and specialised education that is better adapted to regional agricultural conditions.
- The curriculum of the agricultural college should be diversified from agricultural production techniques to broader skills required for future farm managers. Work-based training allows students to work on farms and study at the same time. The conversion of agricultural colleges to newly created professional colleges is one way to strengthen the partnership with industry and reorient the curriculum.
- The government has strengthened support to young farmers entering the sector. The programme provides income support payments for young farmers for up to seven

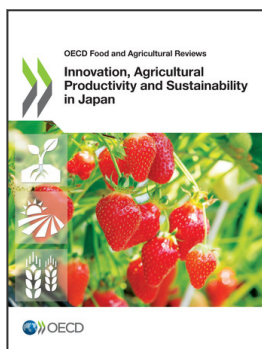
years before and after entry. However, providing more structured opportunities for learning and training that combines both lectures and internships in advanced farming is more important for acquiring the necessary skills to become a viable farmer.

- Prefectural extension services and local JAs provide technical advisory service free of charge, but commercial technical advisory services are relatively underdeveloped with the exception of the livestock sector. Both prefectural extension services and JAs face constraints in updating their skills and knowledge as quickly as current technology and industry develop, and in mainstreaming entrepreneurial and risk management skills.
- Japan's agricultural extension system must evolve towards more demand-driven pluralistic advisory systems that mix both public and private services. The public extension service should focus on areas of public interest, such as adopting sustainable production practices, supporting disadvantaged producers, and coordinating government policy in the field. Government can play a more proactive role to strengthen support for continuous education and training for farmers. JA's technical advisory services should be more competitive and should include paid services.
- Despite the mechanisation of agriculture, the sector still depends on seasonal labour. With a declining working population, limiting temporary workers in agriculture is increasingly constraining farm management. Japan faces a challenge in meeting the shortage of seasonal labour through labour market and immigration policies, and developing labour-saving technology in agriculture.

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