

The International Symposium on Agricultural Innovation for Family Farmers: Unlocking the potential of agricultural innovation to achieve the Sustainable Development Goals

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1. What is agricultural innovation?

Innovation is a very popular term, used in many different circumstances, such as advertising, political speeches, national research programmes and academic articles. When used in everyday language, the term is often used generically to signify progress, improvement and novelty. While many different definitions of innovation are found in the literature, there is no single one that is widely accepted. People can therefore use different definitions and have a different understanding of what innovation means and what it encompasses. None of these definitions are incorrect - they are all equally valid.

As there is no universally accepted definition, it is essential for FAO to specify what it means by agricultural innovation when organising the Symposium. Put simply, innovation refers to the process whereby individuals or organisations bring new or existing products, processes or ways of organisation into use for the first time in a specific context. Putting it in the framework of agriculture, the working definition that FAO will use for the purpose of organizing this Symposium is: **Agricultural innovation is the process whereby individuals or organisations bring new or existing products, processes or ways of organisation into use for the first time in a specific context in order to increase effectiveness, competitiveness, resilience to shocks or environmental sustainability and thereby contribute to food security and nutrition, economic development or sustainable natural resource management.**

Novelty is a key aspect of the definition, i.e. although the products, processes and ways of organisation may already exist, they are new to the individuals or organisations who are bringing them into use in a given location and context for the first time. Also, it is not restricted to use of technologies but also use of social, organisational, institutional or marketing processes or arrangements. Further details and clarifications regarding the definition used for the Symposium are provided in the Box.

BOX 1. Some key points and clarifications about the working definition of agricultural innovation used for the Symposium: Agricultural innovation is the process whereby individuals or organisations bring new or existing products, processes or ways of organisation into use for the first time in a specific context in order to increase effectiveness, competitiveness, resilience to shocks or environmental sustainability and thereby contribute to food security and nutrition, economic development or sustainable natural resource management.

- **INNOVATION VERSUS INNOVATIONS:** While agricultural innovation refers to the process whereby new or existing products, processes or ways of organisation are brought into use for the first time, the plural term innovations refers to the products, processes or ways of organisation that are brought into use.

- **“NEW OR EXISTING”:** The products, processes and ways of organisation may be new (never used elsewhere) or they may already exist (used before but not in this location and context). They are, however, new to the individuals or organisations who are using them for the first time in that context.

- **“INTO USE FOR THE FIRST TIME”:** Products, processes or ways of organisation only become innovations when they are brought into use, i.e. when they are used by individuals or organisations, and when they are new to those individuals and organisations who use them for the first time. It does not, therefore, include products, processes or ways of organisation which are at the conceptual, research, development or trial stage and have not yet been used in practice.

- **“IN A SPECIFIC CONTEXT”:** Some products, processes or ways of organisation may be already in use in a specific location and context. However, when they are brought into use in the same location but in a different context for the first time this is considered to be agricultural innovation. For example, if farmers in a certain region have been using biofertilisers for maize production and then begin to use them for the first time in the forestry sector.

- **“PRODUCTS”:** The term ‘products’ in the working definition refers to a broad category that encompasses all final goods (e.g. an agricultural tool/machine or a new variety of fruit) and services (e.g. specific financial advisory services to farmers) destined to a market for consumption, including the technologies involved. Some other examples can be new biofertilisers, crop varieties, vaccines, conventional technologies, information and communication technologies (ICTs) or new radio programmes for farmers.

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- **“PROCESSES”**: The term ‘processes’ in the working definition refers to innovations aiming to improve, inter alia, the production methods (techniques, equipment and software used to produce goods or services) or ways of delivery (broadly speaking, logistics). Process innovations are often aimed at reducing unit costs for production or delivery, and improving products. Examples include ways of delivering farm produce to markets, grading farm produce into different quality classes or using new farming techniques that can boost yield.
- **“WAYS OF ORGANISATION”**: The term ‘ways of organisation’ in the working definition includes, inter alia, business practices or business models, workplace organization, institutional arrangements or improvements in different elements of marketing. Examples include producers organizing themselves in new ways to increase their bargaining power when buying inputs and selling their produce; reform of rural advisory services so they are more demand-driven and able to better respond to the needs of the farmers; and introduction of participatory research approaches so that research institutions and farmers work more closely together.
- **SECTORS**: Agricultural innovation encompasses innovation in the crop, livestock, forestry, fishery and agro-industry sectors, thereby encompassing use of new or existing products, processes and ways of organization by individuals and organisations in the different production systems and value chains of these sectors.
- **KNOWLEDGE**: Innovation is made possible by knowledge. Generally speaking, the knowledge involved in innovation may be entirely new or it may be new knowledge combined with existing knowledge. This knowledge can come from one or a combination of different sources - from farmers and other individuals; formal scientific research institutions or other kinds of public or private organisations, including civil society organisations.
- **INVENTION VS. INNOVATION**: An invention can be defined as a novel idea that has been given form (e.g. as a diagram, model or technology) which has potential for application. The term ‘innovation’, on the other hand, refers to the actual implementation of the invention into society. Only when used, does an invention become an innovation.
- **RISK**: Innovations are expected to be beneficial. These expectations may come, for example, from reports of experiences by individuals or organisations in other areas or from results of research trials. However, the innovations may turn out to be less beneficial than expected, or even not beneficial at all, for some or all of the individuals or organizations who use them. This may happen because it is the first time they use these innovations and some learning and adaptation to their current working practices may be required or because they have not been successfully adapted to the local context. Despite the expectation of benefits, there is therefore an element of risk involved in their adoption of the innovations.
- **EFFECTS**: Innovations can have large effects (so-called disruptive innovations, e.g. using a tractor in place of animal traction for farm work) or more gradual effects (incremental innovations, e.g. using a new model of tractor).
- **MONETARY BENEFITS**: Innovations can be adopted by individuals/organizations for the purpose of gaining monetary and/or non-monetary benefits. Examples of the latter might include use of new labour-saving devices which allow the producers to have more time available for other activities.
- **DEGREE OF USE**: Use of innovations by individuals or organizations does not mean they have been put into use by all of them. In practice, the process of bringing innovations into use can take some years (often following a diffusion pattern whereby successful innovations are typically used by a small minority of producers first and the remainder use them at different rates thereafter).

2. What is family farming?

There is no universal consensus regarding the definition of family farming. However, as FAO (2014)¹ and Garner & de la O Campos (2014)² note, most definitions recognise two key characteristics - ownership and/or management of the farm by a family and, secondly, that the family supplies most of the labour on the farm.

The General Assembly of the United Nations declared 2014 as the International Year of Family Farming ([IYFF](#)) and invited FAO to facilitate its implementation through a multi-stakeholder International Steering Committee³. The International Steering Committee defined family farming as follows: **Family Farming (which includes all family-based agricultural activities) is a means of organizing agricultural, forestry, fisheries, pastoral and aquaculture production which is managed and operated by a family and predominantly reliant on family labour, including both women’s and men’s. The family and the farm are linked, co-evolve and combine economic, environmental, social and cultural functions.**

BOX 2. Characteristics of family farming:

- **NUMBER OF FAMILY FARMS.** Family farming is the predominant form of agriculture in both developed and developing countries. According to [SOFA 2014](#), it is estimated that there are at least 500 million family farms in the world. Family farms are estimated to represent over 90 % of the world's farms.

- **LOCATION.** Roughly, three-quarters of the 570 million farms in the world are located in Asia. An estimated 35% are in China, 10% in the rest of East Asia and the Pacific, 24% in India and 6% in the rest of South Asia. An estimated 9% of farms are located in Sub-Saharan Africa; 9% in Europe and Central Asia; 4% in Latin America and the Caribbean; 3% in the Middle East and North Africa; and 0.5% in North America.

- **FAMILY LABOUR.** The labour of the farm (production unit) and the family members (family unit) coincide in family farming. The family members that own and operate the farm do most of the work, if not all. This does not exclude the participation of casual workers, be it on a permanent or seasonal basis.

- **DIVERSITY.** Diversity is perhaps the most important characteristic of family farming. Family farmers are an extremely diverse group: they can notably vary in terms of size of their farm, access to market and natural resources, patterns of production, investment capacity, role of self-consumption, use of inputs and technologies, labour (i.e. seasonal workers), outputs, productivity (ranging from subsistence to commercial agriculture) and other characteristics.

- **CAPACITY.** Family farms vary in their capacity for commercial production and innovation. According to SOFA 2014, they can be put in three broad categories:

- **Subsistence or near-subsistence smallholders**, who produce essentially for their own consumption and have little or no potential to generate a surplus for the market;
- **Small or medium-sized family farms**, that are already market-oriented and commercial, generating a surplus for the market (local, national or international), or that have the potential to become market-oriented and commercial given the right incentives and access to markets;
- **Large family farms**, which are essentially large business ventures although they are managed by a family and use mostly family labour.

- **FARM SIZE.** [Lowder, Skoet & Singh](#) and SOFA 2014 estimate that the vast majority of family farms are small. Globally, 72% of farms are less than one hectare in size (covering only 8% of farmland); 12% are between one and two hectares in size (covering 4% of farmland) and 10% are between two and five hectares in size (covering 7% of farmland). Thus, about 94% of farms worldwide have less than 5 hectares, and they occupy 19% of farmland. In addition, a small proportion of farms are very large. Thus, about 1% of farms are greater than 50 hectares and they occupy roughly 2/3 of all farmland. Large farms dominate in high-income countries and upper middle-income countries and in countries where extensive livestock grazing is important. Many of these farms are family farms. It is therefore important to note that a family farm and a small farm are not necessarily the same thing.

- **SECTORS.** Family farming refers not only to crop production but also to aquaculture, fisheries, forestry and pastoral activities. Family farmers include peasants, indigenous peoples, traditional communities, fisher folks, mountain farmers, pastoralists and many other groups representing every region and biome of the world.

- **FOOD SECURITY.** Based on a sample of 30 countries, SOFA 2014 estimates that family farms manage about 75 % of farmland worldwide and produce over 80 % of the world's food. They are therefore critical for meeting global food security and sustainable production challenges. Paradoxically, family farmers are often poor and food insecure themselves. In low-income and lower-middle-income countries, small family farms are particularly important for achieving food security. Farms smaller than five hectares occupy about 70% of all farmland in the low-income countries and about 60% in the lower middle-income group. Thus, not only are the majority of farms smaller than five hectares but they also cover the majority of agricultural land and produce the greater part of national food output in low-income and lower-middle-income countries.

- **OFF-FARM INCOME.** Most farming families do not rely exclusively on farming for their livelihoods but have multiple sources of income. The smaller the family farm, the bigger the dependence they typically have on off-farm income.

3. Why is FAO holding this symposium?

The world is facing unprecedented global challenges⁴ that affect the sustainability of food and agriculture systems, and thus the livelihoods of millions of family farmers worldwide. These challenges include natural resource depletion and the adverse impacts of environmental degradation, such as desertification, drought, land degradation, water scarcity and loss of biodiversity; an ever-increasing world population; and climate change.

These global challenges pose serious threats to achieving the right to adequate food and the fundamental right of everyone to be free from hunger⁵. Today, hunger remains an everyday challenge for humankind and about 815 million people are still chronically undernourished⁶. Furthermore, to meet the demand from a projected population of nearly 10 billion people in 2050, it is estimated that agricultural output will need to increase by almost 50% compared to 2012⁷. The bulk of this increase must come from family farmers who manage about 75% of farmland worldwide, produce over 80% of the world's food but, paradoxically, are often poor and food insecure themselves. In this context, many developing countries are as yet unable to harness the full potential of agricultural innovation.

The objectives of the symposium are:

1. **Serve as a global knowledge and partnership platform** to better understand the potential of innovation in agriculture to address the Sustainable Development Goals, with a special focus on supporting smallholder and family farmers;
2. **Increase understanding of the drivers** of innovation and the main constraints;
3. **Propose processes, pathways and interventions needed** to unlock the potential of innovation in agriculture and scaling up inclusive innovations;
4. **Celebrate inspiring success stories** of innovation and innovators in sustainable agriculture;
5. **Act as a catalyst for boosting partnerships as well as public and private investments** to foster and scale up agricultural innovation.

The symposium will therefore aim to increase understanding of the innovation drivers and processes, which is critical to unlocking the potential of innovation to achieve the transformative change required in agriculture and rural development. Collective actions are required to remove barriers and address the constraints (technological, social, organizational, policy, etc.) that stifle the capacity of family farmers and of other stakeholders in agriculture and food systems, to innovate.

Scaling up, which is fundamental, also requires that the stakeholders and decision-makers develop a better understanding of impact pathways as well as new partnership and business models involving the public sector, private sector, civil society and farmer organizations. Through the symposium, stakeholders can learn about the pathways and drivers that lead to successful innovation as well as opportunities for rapid scaling up of agricultural innovation.

FAO is uniquely positioned to convene such an international symposium, to provide inspiration for innovation actors and decision-makers, especially in the developing countries, to unlock the potential of innovation to drive socio-economic growth, ensure food and nutrition security, alleviate poverty, improve resilience to changing environments (e.g. climate change) and thereby achieve the Sustainable Development Goals (SDGs).

4. What are the expected outcomes of this symposium?

The symposium is conceived as a dynamic multistakeholder and multidisciplinary forum aimed at understanding the socio-economic potential of innovation, its key drivers and processes, and impact pathways through exchange of knowledge, information and practices, review of enabling policies and platforms, and development of potential partnerships and action plans.

The expected outputs of the symposium are:

1. **Support for a Call for Action** to unlock the potential of agricultural innovation for family farmers to achieve the Sustainable Development Goals;
2. **Identification of priority intervention areas** where key stakeholders, including FAO, can support countries to unlock the potential of agricultural innovation to achieve the SDGs;
3. **Identification of potential actions and strategies for scaling up** successful innovations to meet the needs of millions of family farmers;
4. **Proceedings of the symposium** with key recommendations for action will be published on the FAO website.

5. Is it the first time that FAO is organizing a global symposium on agricultural innovation for family farmers?

Yes, it is the first time that FAO organizes a global symposium on agricultural innovation for family farmers. However, this symposium is part of a broader effort that FAO is making to promote agricultural innovation for family farmers in order to increase food security, sustainable development and promote rural development.

At its 66th Session, the UN General Assembly declared 2014 to be the International Year of Family Farming (IYFF) and invited FAO to facilitate implementation of the Year, in collaboration with other relevant stakeholders. Among its initiatives for the IYFF, FAO dedicated its major annual flagship publication, the State of Food and Agriculture, to "[Innovation in Family Farming](#)"⁸. The report highlighted that the world's food security and environmental sustainability depend on family farms that form the backbone of agriculture in most countries. It also stressed that family farms are an extremely diverse group and that this diversity must be taken into account. The report underlined how innovation could lift farmers out of poverty and help the world achieve food security and sustainable agriculture. Now it is time for that action to materialise so that agricultural innovation can be scaled up for the benefit of family farmers.

The UN General Assembly recently [proclaimed](#) 2019–2028 the United Nations Decade of Family Farming⁹, recognizing the success of the IYFF, which raised the profile of the role of family farming, pastoralism and smallholder farming in contributing to the achievement of food security and improved nutrition. In its resolution, the UN General Assembly gave particular attention to innovation, recognizing "the important role of science, technology, innovation and entrepreneurship in supporting smallholders, including pastoralists and family farmers, in particular women and youth in rural areas". The UN General Assembly called upon FAO and the International Fund for Agricultural Development (IFAD) to lead implementation of the Decade.

During the 25th Session of FAO's Committee on Agriculture ([COAG](#)) in 2016, FAO member countries underscored the importance of agricultural innovation in achieving sustainable rural development, particularly for addressing the challenges of employment for youth and rural women to alleviate rural poverty. They also encouraged FAO to continue its work on agricultural innovation systems, which includes building on partnership platforms such as the [CGIAR](#) (a global agricultural research partnership), the Tropical Agriculture Platform¹⁰ ([TAP](#)), the Global Forum on Agricultural Research and Innovation ([GFAR](#)) and the Global Forum for Rural Advisory Services ([GFRAS](#)). Member countries also recommended that FAO should play a greater role in assisting them and local communities in the development of their agricultural innovation system strategies through comprehensive analysis and needs assessments in partnership with farmers, academia, private sector, research, extension institutions and other relevant stakeholders.

6. Why is agricultural innovation important for family farmers?

Innovation in agriculture cuts across all dimensions of the production cycle along the entire value chain - from crop, forestry, fishery or livestock production to the management of inputs and resources, to organization and market access. For instance, it may involve planting new crop varieties, combining traditional practices with new scientific knowledge, applying new pest control and post-harvest practices or engaging with markets in new, more rewarding ways.

Innovation is important to realise the productive potential of family farmers, especially in small and medium-sized family farms that occupy a large share of farmland and produce much of the food in low and middle-income countries.

Innovation is not just about technology, which on its own may simply remain on the shelf. It is also, and perhaps most importantly, about social, economic, institutional/organizational and policy processes, and having an impact on the lives of family farmers.

Innovation can allow farmers to produce more with resources they already have and to reduce their costs of production, while ensuring that more sustainable methods of production are applied in order to preserve natural resources and guarantee global food security. It can also allow them to expand, change or diversify their marketable output, increasing the profitability of their farms. It may also allow them to free up resources (e.g. labour) for use in other economic activities.

7. What are the Sustainable Development Goals (SDGs)?

On 25 September 2015, the 193 Member States of the United Nations adopted at an [historic UN Summit](#) a set of goals to end poverty, protect the planet and ensure prosperity for all as part of a new sustainable development agenda. [The 17 Sustainable Development Goals \(SDGs\)](#) of the [2030 Agenda for Sustainable Development](#) officially came into force on 1 January 2016. Over the next fifteen years, with these new Goals that universally apply to all, countries will mobilize efforts to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind.

The SDGs, also known as Global Goals, build on the success of [the Millennium Development Goals \(MDGs\)](#) and aim to go further to end all forms of poverty. The new Goals are unique in that they call for action by all countries, poor, rich and middle-income to promote prosperity while protecting the planet. They recognize that ending poverty must go hand-in-hand with strategies that build economic growth and addresses a range of social needs including education, health, social protection, and job opportunities, while tackling climate change and environmental protection.

While the SDGs are not legally binding, governments are expected to take ownership and establish national frameworks for the achievement of the 17 Goals. The SDGs are articulated in 169 targets and 230 indicators and FAO is the custodian UN agency for 21 indicators and a contributing agency to four others. Countries have the primary responsibility for follow-up and review of the progress made in implementing the Goals, which will require quality, accessible and timely data collection. Regional follow-up and review will be based on national-level analyses and contribute to follow-up and review at the global level.

8. What is the role of agricultural innovation for the achievement of the Sustainable Development Goals (SDGs)?

From ending poverty and hunger to responding to climate change and sustaining our natural resources, [food and agriculture lies at the heart of the 2030 Agenda](#). Both the SDGs and FAO's strategic framework are geared towards tackling the root causes of poverty and hunger, building a fairer society and leaving no one behind.

Research and innovation are key drivers of the SDGs. Agricultural innovation is key to fulfilling SDG 2 (End hunger, achieve food security and improved nutrition and promote sustainable agriculture) as well as SDG 12 (Ensure sustainable consumption and production patterns).

9. Who will participate in the symposium?

Participants in the symposium will be representatives of governments, United Nations (UN) bodies and specialized agencies, intergovernmental organizations and of non-state actors. This last group includes the representatives of civil society organizations; private sector entities (including philanthropic foundations); academia and research institutions; and producer organizations and cooperatives.

Representatives of governments, UN bodies and specialized agencies and intergovernmental organizations will be formally invited by FAO. Representatives of non-state actors interested in attending the symposium, can express their interest in participating through an open call that will be published on the FAO website.

Experts and key stakeholders will be invited to make presentations and to participate in panel discussions. Overall, about 400-500 participants are expected.

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- ¹ FAO. 2014. The State of Food and Agriculture: Innovation in family farming. <http://www.fao.org/publications/sofa/2014/en/> (i.e. SOFA 2014). Among its initiatives for the International Year of Family Farming (IYFF), FAO published this report on ‘Innovation in family farming’ within its major annual flagship publication series, the State of Food and Agriculture (SOFA).
- ² Garner, E. and A. de la O Campos, 2014. Identifying the “family farm”: An informal discussion of the concepts and definitions. ESA Working Paper No. 14-10. FAO. <http://www.fao.org/3/a-i4306e.pdf> This was a background paper to SOFA 2014.
- ³ <http://www.fao.org/family-farming-2014/home/structure-partnerships/en/>
- ⁴ FAO 2017. The future of food and agriculture – trends and challenges. <http://www.fao.org/3/a-i6583e.pdf>
- ⁵ FAO 2004. Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of national food security. <http://www.fao.org/3/a-y7937e.pdf>
- ⁶ FAO, IFAD, UNICEF, WFP and WHO. 2017. The State of Food Security and Nutrition in the World 2017. Building resilience for peace and food security. Rome, FAO. <http://www.fao.org/3/a-I7695e.pdf>
- ⁷ FAO 2017. The future of food and agriculture – trends and challenges. <http://www.fao.org/3/a-i6583e.pdf>
- ⁸ FAO. 2014. The State of Food and Agriculture: Innovation in family farming. <http://www.fao.org/publications/sofa/2014/en/> (i.e. SOFA 2014). Among its initiatives for the IYFF, FAO published this report on ‘Innovation in family farming’ within its major annual flagship publication series, the State of Food and Agriculture (SOFA).
- ⁹ Resolution 72/239 adopted by the UN General Assembly at its 72nd Session on 20 December 2017 http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/72/239
- ¹⁰ The Tropical Agriculture Platform (TAP) is a G20 initiative aimed at strengthening national capacities for agricultural innovations in the Tropics <http://www.fao.org/in-action/tropical-agriculture-platform/background/en/>