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Youth recommendations for smart farming: Shaping priorities for the next generation of changemakers

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Background

Youth play a critical role in unlocking new opportunities and contributing entrepreneurial, scientific and technological solutions that can accelerate progress toward achieving the Sustainable Development Goals (SDGs). However, they often lack the resources, networks and enabling policy environments needed to fully realize their potential as innovators and leaders.

In the lead up to the eleventh annual Multi-stakeholder Forum on Science, Technology and Innovation for the Sustainable Development Goals (STI Forum), the Food and Agriculture Organization of the United Nations (FAO), through Office of Youth and Women (OYW) and the World Food Forum (WFF) Youth Assembly, conducted a global online consultation to gather youth perspectives and youth-led recommendations on the role of science, technology and innovation in advancing sustainable and inclusive agrifood systems with a particular focus on smart farming approaches that integrate data, digital technologies, artificial intelligence (AI), Internet of Things (IoT) and precision tools to support evidence based decision-making.

The outcomes of the consultation presented in this document will contribute to discussions at the FAO Global Conference on Smart Farming, helping inform policy dialogue on inclusive innovation ecosystems.

Objectives and methodology

The consultation aimed to identify priority policy areas and enabling mechanisms that support youth-led and gender-inclusive innovation in digital and precision agriculture, while generating actionable recommendations to strengthen the adoption of smart farming among young farmers. The consultation engaged more than 200 young participants from across the world through a global dialogue. Participants represented diverse stakeholder groups across agrifood systems, representing agriculture, education and research, government institutions, advisory services, as well as technology, finance, legal and manufacturing sectors. The dialogue enabled participants to share experiences, identify key challenges and opportunities and develop recommendations for policy and practice.

A 90-minute virtual consultation was designed to provide a space for youth to exchange perspectives and co-develop recommendations that enable youth-led smart farming solutions. Following expert presentations, participants were divided into four thematic groups: (1) advancing young women's engagement and leadership in smart farming; (2) enabling youth access to digital infrastructure, finance and innovation ecosystems; (3) scaling youth-led smart farming solutions for climate resilience and sustainable resource management; and (4) building youth skills, digital literacy and future-ready workforce pathways in smart farming. The consultation was coordinated by members of the WFF youth cohorts, including the Youth Policy Board (YPB) and Young Scientists Group (YSG), as well as members of National Youth Chapters and the Agrifood Leadership Education Programme (ALEP).

This global consultation is part of a multi-step and multi-thematic consultative process reaching more than 17 000 youth worldwide, including young farmers, Indigenous Youth, members of WFF National Youth Chapters, young researchers, students, academia, civil society and more.

Youth recommendations for FAO Global Conference on Smart Farming

Advancing young women's engagement and leadership in smart farming

The meaningful inclusion of young women in smart farming is essential for achieving sustainable and resilient agrifood systems. Despite their significant contributions to agriculture, young women continue to face systemic and socio-cultural barriers in accessing land, finance, digital tools and leadership roles. FAO data shows that women farmers experience a 24 percent productivity gap compared to men on farms of equal size, largely due to unequal access to resources and services, while women in agricultural wage employment earn only 82 cents for every dollar earned by men. Women are also less likely to hold secure land rights—in nearly 90 percent of countries with available data, fewer than half of women possess secure tenure over agricultural land—limiting their full participation in leading the transition to smart farming ([FAO 2023](#)).

Governments, development organizations, financial institutions and agricultural institutions should:

- Promote young women's meaningful participation in decision-making processes, including through representation targets in agricultural councils, producer organizations, climate adaptation programmes and national policy platforms.
- Improve access to land, finance and markets for young women through more inclusive and gender-responsive policies. This should include expanding collateral-free lending programmes that support the adoption of smart agriculture tools and technologies, strengthening young women's land rights and developing tailored financial instruments for women-led agribusinesses alongside alternative credit mechanisms that reduce dependence on land ownership as a prerequisite for financing.
- Invest in accessible capacity development programmes for young women in smart farming, including digital literacy, climate-smart agriculture, Science, Technology, Engineering, and Mathematics (STEM) education, data-driven farming practices and entrepreneurship, while strengthening mentorship networks. Training programmes should be designed to accommodate mobility constraints and the unpaid care responsibilities of young women.
- Bridge the digital and technology gap by expanding affordable access to digital tools for young women, connectivity and agricultural technologies that are core to smart farming. Beyond access, such programmes should adopt a co-creation framework where solutions are developed through the integration of digital innovation with Indigenous and local knowledge systems. This ensures that the technologies and programmes being developed are culturally appropriate, context-specific and more widely accepted in rural communities. This can include establishing community-based innovation and digital hubs where young women can access training, equipment and technical support to test and adopt new technologies, while strengthening local knowledge systems.

Enabling youth access to digital infrastructure, finance and innovation ecosystems

While digital technologies, innovation and entrepreneurship offer significant opportunities for transforming agrifood systems, young people across regions continue to face structural barriers that limit their access to these opportunities. Key constraints include limited digital and financial literacy, unaffordable internet and mobile connectivity, inadequate rural infrastructure, restrictive financing requirements and fragmented innovation ecosystems. Access to finance remains particularly challenging, as collateral requirements, complex application procedures and perceptions of agriculture as a high-risk sector continue to restrict young people's ability to invest in innovation. In many rural areas, limited skills in navigating digital tools further hinder young people's ability to identify and access available funding opportunities and innovation support systems. Combined with insufficient mentorship and weak support structures for early-stage innovation, these barriers limit young people's capacity to fully engage as innovators, entrepreneurs and leaders in agrifood systems transformation.

Governments, educational institutions, financial service providers, private sector partners and youth-led organizations should:

- Scale up practical digital and financial literacy programmes that equip young people with market-relevant skills to use digital technologies, access inclusive financial services, adopt climate-smart practices and build sustainable and resilient agribusiness enterprises.
- Expand access to youth-friendly finance through non-collateralized lending programmes, group-based financing models, blended finance initiatives and simplified grant application processes tailored to the needs of young entrepreneurs and young farmers, especially those in underserved and rural communities.
- Strengthen youth-targeted innovation ecosystems by establishing accessible innovation hubs, incubation and accelerator programmes and mentorship networks that connect young people to skills development, finance, technology and market opportunities, particularly for marginalized and underrepresented youth.

Scaling youth-led smart farming solutions for climate resilience and sustainable resource management

Youth-led smart farming solutions are already contributing to climate resilience, sustainable resource management and agrifood systems transformation. With 44 percent of working youth employed in agrifood systems, young people are well positioned to drive innovation and sustainability across the sector. However, many youth-led initiatives face significant challenges in scaling due to limited access to finance, infrastructure, technical support, enabling policies and market opportunities.

FAO highlights persistent constraints in young people's access to financial, natural, physical and social capital, which limit their ability to expand entrepreneurial ventures and adopt innovative technologies. In addition, youth-led innovations and best practices are often insufficiently documented, reducing opportunities for knowledge exchange, replication and evidence-based policymaking ([FAO 2025](#)). Addressing these barriers is essential to enable successful youth-led innovations to be scaled, adapted and sustained across diverse contexts.

Governments, research institutions, development partners and private sector partners should:

- Strengthen mechanisms to identify, document and showcase successful youth-led smart farming solutions, particularly from the Global South. This includes investing in evidence-based case studies, demonstration sites, knowledge-sharing platforms and peer-to-peer learning networks, while facilitating regional and cross-regional exchanges that enable young people to adapt, replicate and scale proven climate-smart practices.
- Establish and expand long-term financing and capacity development programmes for young farmers, particularly young women. Efforts should increase access to affordable finance, extension and advisory services, business and leadership training, and sustained support for youth-led cooperatives and agribusinesses beyond short-term pilot projects.
- Enhance access to climate and agricultural data by investing in interoperable digital infrastructure, inclusive regional data-sharing platforms and local data systems. These efforts should be supported by clear data governance frameworks that protect privacy, promote equitable access and enable young farmers to make informed, climate-resilient and market-oriented decisions.

Building youth skills, digital literacy and future-ready workforce pathways into smart farming

The transition to smart farming requires young people to develop a broad set of technical, digital and entrepreneurial skills. However, limited access to practical training, insufficient integration of digital agriculture into education systems and weak links between training and employment continue to constrain youth participation. Participants also emphasized the importance of valuing Indigenous and local knowledge alongside technical competencies to ensure more inclusive and context-specific learning pathways.

Governments, educational institutions, agricultural extension services, private sector partners, development partner, financial institutions and youth-led organizations should:

- Invest in practical skills development programmes that integrate digital agriculture, entrepreneurship, communication, marketing and climate-smart farming. Hands on training, mentorship, innovation labs digital tools and market linkages should be embedded within formal and non-formal education systems to strengthen young people's capacity to develop sustainable agribusinesses and recognize agriculture as a dynamic and value-driven career pathway.

- Strengthen direct funding and support mechanisms for youth-led and community-based smart farming initiatives. Prioritizing locally led solutions can accelerate the adoption of smart farming technologies, create entrepreneurship opportunities for rural youth and strengthen local ownership and long-term impact.
- Align education and workforce systems with the evolving needs of smart farming by developing practical, certified learning pathways that integrate digital agriculture, precision farming and climate adaptation. These efforts should be supported through inclusive partnerships with local organizations to strengthen skills development, improve training delivery and bridge the gap between national policy commitments and local implementation.

Conclusion

This global consultation reaffirmed that young people, including young women, are not only users of innovation but essential partners in driving agrifood systems transformation. Across regions, participants highlighted both the opportunities and persistent barriers shaping youth engagement in smart farming, including unequal access to land, finance, digital infrastructure, skills and decision-making processes.

The consultation also demonstrated that young people are already developing innovative, locally driven solutions that strengthen climate resilience and sustainable resource management. Scaling these solutions requires integrated ecosystems that connect skills development, finance, technology, markets, data, infrastructure and enabling policies in ways that are accessible, inclusive and responsive to local contexts.

Participants emphasized that accelerating the transition to smart farming requires meaningful youth participation in policy development, research, investment and digital transformation processes. This includes ensuring that the perspectives of young women, Indigenous youth, rural youth, youth with disabilities and other underrepresented groups are reflected in decision-making at all levels, while recognizing the value of Indigenous and local knowledge alongside scientific and technological innovation.

Empowering young people to lead innovation in smart farming is essential to advancing sustainable agrifood systems, strengthening climate resilience and accelerating progress towards the Sustainable Development Goals.



The Youth Assembly of the World Food Forum

Connecting youth voices to policy

The WFF Youth Assembly is a youth-led platform and the cornerstone of the WFF's approach to institutionalized youth engagement in agrifood systems governance. Driven by young people through a YPB and the Secretariat, the Youth Assembly works in close collaboration with FAO technical divisions to ensure that youth engagement is evidence-based, policy-relevant and technically sound. The Youth Assembly provides structured and sustained opportunities for young people to engage in global, regional and thematic policy dialogue through consultations, intergenerational exchanges and youth-led research and recommendations, bringing together a diverse spectrum of youth stakeholders across regions, backgrounds and areas of expertise – moving beyond tokenistic representation towards genuine inclusion. By linking youth perspectives with FAO's technical expertise, the Assembly strengthens young people's capacity to contribute meaningfully to decision-making while serving as a sounding board for FAO on emerging priorities and implementation challenges. This two-way engagement supports young people in moving from consultation to action and embeds their contributions within FAO's institutional processes and broader intergovernmental spaces.