Inclusive Digital Transformation of Agriculture: A call for action from small-scale farmers in Asia

We are small-scale women, men, and young family farmers from 13 organizations in 9 countries, members and partners of the Asian Farmers Association for Sustainable Rural Development (AFA), who have participated in the survey, focus group discussions, and experience sharing on digital agriculture. Here we discussed the situation, challenges, and recommendations on digital agriculture.

In 2022, AFA partnered with the Global Forum on Agricultural Research (GFAR) and the Asia-Pacific Association of Agricultural Research Institutions (APAARI), to define our perspectives on Digital Agriculture. With GFAR's support, we were able to conduct a desk review, the Farmers' Perception Survey, participated in by 372 farmers from 12 Farmers' Organizations in nine countries (Bangladesh, Cambodia, India, Indonesia, Japan, Laos, Mongolia, Nepal, and the Philippines) and focus group discussions, which was the basis of the content of this call for action. The survey results were presented and validated during a regional consultation, the latter also with GFAR's support. This process was made possible through the financial assistance of the European Union.

Introduction

Our region, Asia, is home to about 350 million small-scale farmers who have contributed to the conservation of agrobiodiversity and have been producing diverse food and other agricultural products for the region. Despite these essential roles, we continue to endure multidimensional challenges ranging from land tenure issues to land and water degradation, biodiversity loss, increasing costs of food, and limited access to a favorable market. The increasing costs of farm inputs (seeds, labor, fertilizers, fuel, etc.) coupled with fluctuating and low farm gate prices of Agri and food products have made it difficult for us to truly transform our economic conditions and build our resilience. Moreover, climate change is aggravating our situation. Episodes of prolonged droughts and extreme rains are affecting men, women, and young farmers differently, with women farmers in a more disadvantaged position because of structural conditions and cultural norms.

One of the priority solutions that have emerged in global and regional discussions with key international development agencies and governments is the use of digital technologies or Digital Agriculture, touted to help increase our farms' productivity and efficiency and enable us to be better integrated into value chains while also tackling climate change impacts. While technological solutions are needed, we wanted to reiterate the need to tackle the underlying causes of the many challenges faced by small-scale women, men, and young farmers.

Our realities and concerns

Within our membership, many own or have access to digital devices such as smartphones, however, in some countries, women farmers do not own and cannot access such devices, unlike their male counterparts. Many use digital devices to access weather information and agriculture-related advisories. About 30 percent expressed they are not using any digital solutions. Internet is available in many town centers, but many of us are faced with the challenges of internet stability, internet speed, and high internet fees.

We found out that most of the available high-tech digital tools for agriculture have been designed for large and monoculture farms and cannot be replicated for small-scale farms, and this may further burden small-scale farmers and aggravate existing disparities.

We heard of digital tools like agricultural drones, robotics, and those related to market linkages (e-commerce) and are aware of available digital platforms for agri extension and e-commerce. However, current payment schemes follow the conventional way (monthly subscription fees are fixed) and are not yet tailored to the farming sector where we have to wait for a few months to harvest our produce and are dependent on prices dictated by the market. Customized digital platforms and databases can cost up to USD$1 million and the cheapest we found is USD$175,000.

Alternatives exist but one must pay annual dues for every farmer that will be part of the system. However, one limitation is that they require a large number of farmers - 100, 000 farmers – and it is difficult for a local farmer organization to sustain such a number. While we acknowledge that there is interest among our membership to explore how digital technologies can increase farm productivity, save labor costs, and raise income, still many of us have little knowledge and skills in accessing and using basic digital tools such as digital platforms. Also, affordability and stable internet connection are some of the existing challenges we are facing.

Our call and recommendations

It is in this light that we call governments and key development agencies to support the development of and access of small-scale family farmers to appropriate digital agriculture innovation and maximization of whatever benefits it brings to farmers.

1 Evaluate the advantages and disadvantages of digitalization of agriculture and current business models

We call for concrete actions to facilitate the assessment and in-depth review of the advantages and disadvantages of digital transformation of agriculture and current business models on small-scale farming and integrate the results into existing policies, programs, and innovation processes. We would like to include in the evaluation the effect of some digital technologies on the soil and natural environment.

There is a general perception that digital tools and technologies can increase productivity, save labour costs, and raise income. However, we found out that there are more farmers among our membership who never used digital agri technologies or digitally delivered services. Most of us are familiar with digital solutions related to market linkage.

When it comes to information on improved agri practices and digital technologies, many of us still get information through conventional methods such as training and group activities, and we still rely on our own knowledge and experience to improve our farming practices. We found that most of the available innovations have been designed for the more economically advanced countries and large commercial and mono-crop farming systems. On the production side, there are very limited initiatives that have shown a positive impact at the farmer level. Also, we learned that the application of big data in agriculture has started in a few countries such as the aggregation of production data and local weather data which ran through climate modeling software and coming up with advice on the timing of planting. These initiatives entail huge amounts of investments but the question is that the real impacts and outcomes at the farmer level are yet to be determined.

2 Develop digital agriculture policies tailored for small-scale farming

We call on our governments to create policies that will ensure that ongoing digitalization initiatives, especially those of private and business entities, are based on farmers' needs and realities.

We call on private innovators and digital app developers to use inclusive processes in developing farmer-friendly technologies and apps.

Existing solutions may (for example existing high-tech mainstream digital solutions) not be relevant to us because we grow diverse crops and small livestock in our farms. While digital tools are already being used to disseminate information, this must not replace but rather should complement farmer-to-farmer sharing and farmers' knowledge.

3 Tackle accessibility, affordability, and connectivity challenges

It is important to explore ways to make digitalization work for us while bearing in mind that we've been tackling multiple challenges including climate change impacts.

We call on governments and development partners to ensure internet connectivity in rural areas and ensure that digital agriculture programs and projects integrate mechanisms that tackle the barriers related to access to digital devices and digital literacy such as:

- Community-based/village-level digital center
- Open-source digital platforms for marketing support
- Awareness program and practical training on digital technologies
- Free use of digital devices and appropriate digital technologies through a subsidy program by the government
- Farmer-friendly digital information in the native language

4 Safeguard small-scale farmers' data and promote sustainable approaches

We call on our governments to put in place mechanisms and regulations concerning data privacy, collection, and management because of the possibility that data gathered (farmer and farm level) are misused or used to develop and sell more products to us, which can potentially exacerbate our situation.

There is a tendency that the push for digitalization will likely hugely benefit private companies and startups but not necessarily the smallholder farmers. For example, drones are being introduced to small-scale farmers as an alternative way of spraying their fields with pesticides. This is an example of how digital agriculture can sustain unsustainable approaches rather than promote agroecological transition, which is desperately needed today. But we also recognized that such tools (drones) have supported our advocacy work on land rights.

We are also aware of the possibility that digitalization of agriculture will also enable the growth of the carbon market, which is not necessarily a solution to the climate crisis that we are facing and are experiencing in our farms.

Therefore, we call on governments and development partners to ensure the protection of our rights and control over our data and knowledge against possible risks and threats stemming from ongoing digital initiatives.

5 Co-design with farmers and enable participation in decision-making for more responsive digital technologies

We call on our governments and private entities to enable our active involvement in ongoing and future innovation development to ensure that digitalization initiatives are appropriate and will respond to our needs.

We are aware that there are already digital agriculture innovation hubs established by governments or the private sector. Representation from farmers through our organizations and cooperatives is essential to ensure the integration of farmers' experiences, resources, and challenges. It is important to promote effective partnerships among farmers, the private sector, and other stakeholders along the supply chains and to initiate and support cooperation between farmer groups, educational institutions, and the private sector through inclusive spaces and stakeholder platforms. The government should promote research and development that are done in a participatory manner.

We recognize that there is interest among our fellow farmers, as shown in the survey, to explore digital agriculture technologies and tools to improve production at the farm level. However, we firmly believe that digital agriculture innovations must be developed differently to make them relevant and effective in supporting us, small-scale women, men, and young farmers. We see digital solutions as a way to enhance our access to early warnings and information about weather change, and disease detection, to receive training, access to inputs at a lower cost and efficiency in using agricultural inputs, and market linkage. Many of us have been experimenting daily and have developed practices and systems that improve our soil and productivity. Together with newer technologies, our knowledge and experience will help us adapt to the changing environment while exploring ways to enhance our livelihoods.

6 Partner with farmers’ organizations and cooperatives

Our organizations and cooperatives have been building our capacities, providing economic services to us, linking us to the market, and ensuring our representation in the policy-making processes. The challenges related to affordability, accessibility, and limited digital skills can be addressed effectively if partnerships and collaboration are done with farmers' organizations and cooperatives.

AFA member in the Philippines, the AgriCOOPh, has invested in developing its in-house digital platform for its e-commerce and agri-extension services, one that they own and can control because they cannot afford the cost/fees of existing platforms.

Moreover, when linked to the overall mission of the organization or cooperative, digitalization can yield tremendous positive outcomes for small-holder farmers.

The experience of the Self-Employed Women's Association showed that digitalization has helped them achieve their objective of inclusion (financial and extension) and has made the work of women more efficient and effective. It is also noteworthy that digital tools/platforms and digitally delivered services in the local language have attracted farmers to use digital advisory services.

We call on government and research agencies, development institutions, and private entities to create opportunities and inclusive platforms that will enable the participation of farmers' organizations and cooperatives in implementing digital agriculture programs and projects.

We call on public research institutions to work with us in narrowing the gaps between farmers and researchers by making research responsive to the needs and challenges of small-scale men, women, and young farmers. We also expect private and business entities to work in a true partnership approach that will yield fair economic benefits.

Asian Farmers' Association for Sustainable Rural Development (AFA)

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