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Trip report

Harnessing digital solutions to combat the impact of climate change

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Work package Enabling digital platforms and services

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Table of Contents

Background

In light of the growing challenges posed by climate change; high-level officials, UN representatives, and agribusiness field experts gathered during the Digital Agriculture Solutions Forum 2023, which was organized by the Food and Agriculture Organization of the United Nations (FAO) and the International Telecommunication Union (ITU) in conjunction with CGIAR to explore and provide long-term digital agricultural transformation tools, to emphasize the importance of putting digital solutions at the center of agriculture transformation towards more inclusive, sustainable, efficient, and resilient agrifood systems.

Conference highlights

“Digital agriculture has the potential to help smallholder farmers become more resilient and improve their livelihoods. However, effective partnerships and incentives are needed to sustain an inclusive digital ecosystem and promote digital agriculture to help smallholder farmers improve their livelihoods,” said HRH Princess Basma bint Ali, FAO Goodwill Ambassador for Near East and North Africa (NENA), during the event.

“To benefit the agriculture community and maintain a food secure world, we must discover, implement, and sustain national digital agriculture solutions that benefit our region's backbone of food producers: smallholder and family farmers,” said AbdulHakim Elwaer, FAO Assistant Director-General and Regional Representative for NENA.

As a representative of H.E. Prime Minister of Jordan Bisher Khasawneh, the sponsor of the event, H.E. Eng. Khaled Hneifat, the Jordanian Minister of Agriculture, also attended the conference.

The CGIAR Digital Innovation Initiative (DI) was represented by Ram Dhulipala, as part of the session on Digitalization for Sustainable Agri-Food Systems with focus on climate action. He shared experiences from setting up Agdatahub in 4 African countries as part of AICCRA project, which harvests freely available data from various sources and enables developing

useful insights which can be used by farmer facing organizations in data driven decision making and the possibility of replicating the same in the NENA region.

The CGIAR-led session on "Digital agriculture in advanced scientific research" highlighted how using digital tools for agricultural research not only expands our understanding of agriculture from a scientific standpoint but also promotes more resilient and sustainable farming practises. The session was moderated by Ajit Govind (International Center for Agricultural Research in the Dry Areas [ICARDA]), supported by Kanika Singh (ILRI).

Stephen Mutuvi (Alliance Bioversity-CIAT) highlighted the Artemis project, which applies artificial intelligence and imaging technology to develop phenotyping tools that can help farmers extract trait information on crops to select varieties with the most promising characteristics.

Rachid Moussadek (ICARDA) shared details of a digital platform for monitoring conservation agriculture adoption and a dashboard unifying agronomic advisory service providers, conservation agriculture-based machinery service providers and farmers in Morocco.

“There are a lot of digital solutions that have been created, however there is a need to understand what will make these solutions sustainable. We need to create an enabling

environment which fosters to these digital innovations, develop data structure, human capital, improve access to digital tools and financing, and also work with policy makers", said Sheetal Sharma (International Rice Research Institute [IRRI]) while introducing the audience about to DI and its goals.

Lulseged Tamene (Alliance Bioversity-CIAT) underlined the significance of location-specific and season-smart fertilizer advisory decision support tool. Blanket fertilizer recommendations and application in Africa, despite spatial variation and diversity across agroecological zones, farming systems, landscape positions and soil types has led to a huge disparity in the ratio of fertilizer application to crop yields. The tool helped in increased grain yield up to 38% for farmers who applied the location-specific advisory compared to those who did not, and increased biomass yield up to 25%.

Bezaiet Dessalegn (ICARDA) emphasized the potential for digital media to link research to development, with the example of farmer-to-farmer videos which have proven useful in not only showcasing proven technologies but also the co-creation of knowledge, which allows the content to be relatable and further adoption of those technologies.

Conclusions

In discussions, participants stressed the need to adopt information and communication technologies to close the knowledge gap between agricultural researchers, extension agents, and farmers to agricultural production and income. The revolutionary potential of remote sensing technologies and sensor equipment was also highlighted as a means to transform water management practises and promote sustainable agriculture. The ability of digital financial services, marketing, and agriculture insurance to improve the financial inclusion, profitability, and safety nets of smallholder farmers was also emphasised.

The forum also featured an exhibition of innovative practises from the public and private sectors that were successfully conceived, implemented, and promoted to address some of the region's major concerns.