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Hydro-climate information services for smallholder farmers: DROP app design, implementation, and evaluation

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Rainfed agriculture constitutes the backbone of the economy in many regions of the Global South. Historically, smallholder farmers used their local knowledge to forecast the weather. However, with the increase in climatic variability, they can no longer solely rely on their experience to accurately forecast the weather. DROP App is a hydro-climate information service developed through a co-production approach to address the weather and climate information needs of farmers. The app gathers weather forecast from both local farmers and scientific sources, and presents this information to users to enable them to make informed decisions regarding agriculture. To test its proof-of-concept, the DROP app was implemented in five rice communities in northern Ghana. The app was introduced to farmers, who received training on its use, as well as built their capacity on weather and climate-related phenomena and the use of Information and Communication Technologies (ICT). Following the end of the cropping season, farmers evaluated the app and the results revealed that co-production of information played a crucial role to its adoption in relation to other similar platforms. Farmers consider the app as a relatively accurate and reliable source of information for planning agricultural activities. Using forecasts obtained from the app, farmers adjusted their farming activities, such as time of sowing, planting and weeding dates, fertilizer and herbicide application, and harvesting. They additionally demonstrated a significant level of knowledge about weather phenomena as a result to their engagement and capacity building. Although some limitations exist, the DROP app has potential to deliver actionable knowledge for climate-smart farm decision-making and thus, facilitate effective agriculture management.