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Combining Indigenous and Scientific Forecast for Improved Climate Services in Ghana

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Extreme weather events and climate change are affecting the livelihoods of farmers across the globe. Accessible and actionable weather and seasonal climate information can be used as an adaptation tool to support farmers to take adaptive farming decisions. There are increasing calls to integrate scientific forecast with indigenous forecast to improve weather and seasonal climate information at local scale. In Northern Ghana, farmers lament about the quality of scientific forecast information thereby depending on their own indigenous forecast for taking adaptive decisions. To improve this, we developed an integrated probability forecast (IPF) method to combine scientific and indigenous forecast into a single forecast and tested its reliability using binary forecast verification method as a proof of concept. We also evaluated the acceptability of IPF among farmers by computing an index from multiple-response questions with good internal consistency check. Results show that, for reliability, IPF on average performed better than indigenous and scientific forecast at a daily timescale. At seasonal timescale, indigenous forecast overall performed better followed by IPF and then scientific forecast. However, IPF has far greater acceptability potential. About 93% of farmers prefer IPF method as this provides a reliable forecast, requires less time and at the same time helps deal with contradicting forecast information. Results also show that farmers already use insights from both forecasts (complementary) to inform their farm decisions. However, their complementary method does not resolve the issues of contradicting forecast information. We conclude that, as a proof of concept, integrating indigenous and scientific forecast has high acceptability and can potentially increase forecast reliability and uptake.