Mature Products & Assets

[AGDAY]

[product URL *Web:* *AgDay mobile application for planting date advisory*]

Scope and benefits

The CGIAR Excellence in Agronomy Initiative (EiA) collaborated with national partners to co-develop data-driven advisory services for smallholders in the rice-based cropping systems of South Asia. The Eastern Gangetic Plain (EGP) region, encompassing the Terai of Nepal, Bangladesh, and densely populated states of Eastern India like Bihar, Uttar Pradesh, and West Bengal, faces high poverty levels, dependency on agriculture, and frequent climate extremes. Delayed rice planting in the EGP adversely impacts agricultural productivity. Timely planting is crucial as it directly influences rice yield and subsequently the yield of wheat.

Research by CGIAR and national partners highlights the importance of managing the cropping calendar effectively to ensure food security in the EGP. Current agricultural advisories are often generic and do not account for landscape variations across the EGP. There is a critical need for dynamic advisories that provide location-specific, timely guidance to farmers.

Example:

Publication Date: December 2024

Development & versioning

Version 2.0 of app already deployed. The application is titled AgDay and is accessible on the Google Play Store (AgDay), functioning on the Android operating system.

Use considerations

To develop a dynamic digital agricultural advisory service that strengthens the agro-advisory ecosystem in the state of Bihar (India) in the Eastern Gangetic Plain (EGP). This advisory will feature a data-driven API to help farmers make informed decisions on timely rice planting, considering factors such as irrigation, rice variety, risk, and monsoon onset forecast. The app will offer dynamic short-term loop recommendations, providing updated agronomy advice on optimum site-specific planting dates based on evolving agro-ecological conditions. It also provides information on Package of Practices (POPs) such as recommendations on variety, fertilizer, herbicide etc.

Target users

Farmers and extension functionaries

Maturity and Scalability

CGIAR innovation readiness: 8 | innovation use: 4

Contribution to AI readiness

GiZ project integrating Large Language Models (LLM) to communicate with farmers in their own language in the app in newer version 3.0

Validation and Piloting

The Decision Support Tool (DST) underwent validation from 2021- 2024 in 7 districts of Bihar, namely Lakhisarai, Nalanda, Gaya, Samastipur, Madhubani, Muzaffarpur and Vaishali. The validation involved comparing the results obtained from on-farm demonstrations with both timely planted and conventional delayed practices. For rice, timely transplanting facilitated

by DST resulted in an average yield gain of approximately 0.84 t/ha compared to the traditional late planting practices in the target districts.

Early transplanting also enabled rice establishment 10-20 days earlier (with an average of 14 days) compared to farmer practices. In the case of wheat, the early establishment of rice advanced wheat sowing by 5 to 25 days (with an average of 12 days earlier) and led to an average yield gain of 0.6 t/ha compared to conventional practices. Overall, the system yield gain from implementing the DST was 1.5 t/ha, demonstrating significant improvements in agricultural productivity and efficiency in the validated regions.

Currently, 75% of farmers, who received planting date advisories have continued adopting the advisories and are willing to continue adopting them in future. 83% of farmers indicated that their yield has increased significantly with the same or slightly reduced cost of cultivation and labor use.

Supported Results

- Demonstration product and users report: Updated Planting Date UC Demonstrations
- Convergence: a key for scaling innovation into impact https://hdl.handle.net/10568/138516