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ORIGINAL PAPER



Rice-Wheat Crop Manager: An Effective Crop Management Tool for Rice-Based Cropping in Eastern Uttar Pradesh, India

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ABSTRACT

Rice-Wheat Crop Manager (RWCM) is an information and communications technology (ICT) oriented web-based decision-making tool for precise nutrient management in the rice-wheat cropping system for Eastern Uttar Pradesh, India. It was developed by IRRI and is grounded on the principles of site-specific nutrient management. It provides irrigated and rainfed rice farmers with a personalized crop and nutrient management recommendation for increasing rice production and income. The use of nutrient management recommendations from RWCM has increased the rice yield by 0.5-1 t/ha/season with a net added benefit of US\$ 100- 150/ha. This added benefit was observed either due to an increase in rice yield or saving on fertilizer costs.

About the ICT tool

RWCM aims to sustain the productivity of the rice-wheat cropping system and increase the net income of rice and wheat farmers in Eastern Uttar Pradesh, India. We are offering better crop and nutrient management solutions to farmers.

IRRI developed the concept and framework for RWCM. The nutrient management guideline is based on site-specific nutrient management (SSNM) principles through a partnership with national agricultural research organizations in Asia.

How does it work?

1. Extension workers are trained to operate the RWCM application.
2. Farmers are interviewed using the RWCM application and their responses are captured to generate a unique recommendation for their specific plot.
3. Interviews are conducted online or offline; the Internet is required to generate the recommendation.
4. The recommendation is printed and is provided to the farmers to be used throughout the season.
5. The recommendation provides advisories on the source, timing and amount of fertilizers selected by farmers, crop cycle, weed management, organic fertilizer and nursery preparation.



Fig. 1 Recommendation generation and farmer interaction

Key findings after using RWCM

Using RWCM recommendations, a farmer can get an additional 0.5 t/ha yield for rice and wheat, translating into INR15000-20000 per year. Therefore, RWCM offers a win-win situation for the small and marginal farmers by getting a simple recommendation on nutrient management.

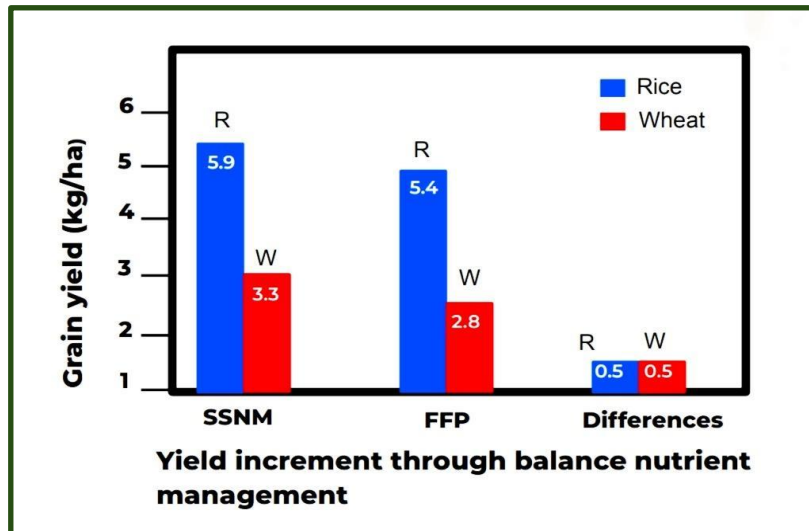


Fig. 2 Yield gain through site-specific nutrient management by the adoption of RWCM recommendations

LESSONS LEARNED AND RECOMMENDATIONS

Dissemination is easy; adoption takes time:

The new technology takes time to get adopted by the farmers. Farmers are used to practicing rice & wheat cultivation in traditional ways and it takes time to change their mindset. Continuous efforts are required to create awareness of the economic benefits and soil health improvement through demonstrations, trials and field days.

Continued research is required to improve the effectiveness and preciseness of RWCM recommendations. Research forms the backbone of the application. IRRI, in collaboration with the research partners, is continuously working to validate the existing content and improve it further. New findings are being added to make it more robust and effective.



Fig. 3 Awareness program on the usage of ICT based tool

what will be the next steps?

The next few years will be critical for the overall success, sustainability, scale and impact of RWCM

- Need to from push to pull strategy to ensure the sustainability of the application.
- Explore new dissemination pathways such as private partners for scalability and faster dissemination.
- RWCM will be improved further to provide recommendations for stress conditions.
- An RWCM business model is being developed by involving agri-input dealers and entrepreneurs.