



RESEARCH PROGRAM ON
**Climate Change,
Agriculture and
Food Security**



Real-time crop yield monitoring in Nepal for food security planning and climatic risk management

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CAAFS Outcome Case

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Flagship	Climate Risk Management
Geographic focus	South Asia

Summary

Crop yield forecasting uses meteorological data, soil properties, management practices and genotype data to predict crop yields in a given area prior to harvest. Crop yield forecasting is an important tool for food security planning as it allows decision makers to make decisions related to pricing, export/import, distribution etc., which helps avoid a situation of food insecurity. Reliable crop yield forecasting becomes all the more important in the context of climate change since climate change exacerbates the unpredictability of crop yields for a given season.

In Nepal, crop yield estimation typically took a more traditional approach combining sample crop cutting data with field surveys, and field verification reports from the District Agricultural Development Offices (DADOs). Based on the information gathered through these processes, and additional field verifications and consultations, the Ministry of Agricultural Development (MoAD), World Food Programme (WFP) and the Food and Agriculture Organization of the United Nations (FAO) releases crop situation updates twice a year, after the summer and winter harvests. While this process has its advantages, it is time consuming and costly. The crop cut results can take between six months to over one year to provide a basis for the area and production estimates and the results only become available after the crops are actually harvested.

In this context, CCAFS partnered with WFP and MoAD to deploy and test the CCAFS Regional Agriculture Forecasting Toolbox (CRAFT) to estimate in-season crop yields for wheat and paddy. CRAFT produced real-time estimates of production much before official estimates based on field measurements were made available. The outputs of this approach for two consecutive seasons form the basis of Nepal's Food Security Monitoring System (NeKSAP), and results were published through the Nepal Food Security Bulletin and Crop Situation Update.

Key facts

- CRAFT produced real-time estimates of rice and wheat production and results were published through Nepal Food Security Bulletin and Crop Situation Update

- In addition to Nepal, CRAFT is currently being tested in Bangladesh, India and Sri Lanka

Lessons: key elements of success

- The efforts addressed pressing scientific and capacity gaps since a systematic yield forecasting model has not been developed for Nepal, and forecasts relied on traditional methods which were expensive and time consuming.

Further reading

- [Stakeholders learn new features of yield forecasting toolkit](#)
- [Forecasting in-season wheat and paddy yields: emerging results from Nepal](#)

Related research outputs

- CCAFS. 2014. CCAFS Regional Agriculture Forecasting Toolkit (CRAFT). New Delhi, India: CGIAR Research Program on Climate Change, Agriculture and Food Security. Available at: <http://hdl.handle.net/10568/57007>
- NESKAP. 2015. A Report on CRAFT Implementation for In-season Wheat Yield Forecasting (Winter 2014/15) in Nepal. Nepal Food Security Monitoring System. Available at http://neksap.org.np/uploaded/CRAFT_wheat_report_2015.pdf
- NESKAP. 2015. A Report on In-season Paddy Yield Forecasting (Summer 2015) using CRAFT in Nepal. Nepal Food Security Monitoring System. Available at http://neksap.org.np/uploaded/CRAFT_PADDY_2015_final.pdf

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