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Wednesday, Mar 27, 2024

The Indian EXPRESS

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News / Explained / ICCC: Integrated farm data dashboard for customised solutions

ICCC: Integrated farm data dashboard for customised solutions

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Written by **Harikishan Sharma**   (Follow)

New Delhi | March 27, 2024 07:07 IST

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The ICCC has a contact centre and a helpdesk facility, with the operator's handset capable of being converted into a call centre. If needed, farmer beneficiaries can interact directly with officials or the Minister through video conferencing facilities.

Earlier this month, Agriculture Minister Arjun Munda inaugurated a Krishi Integrated Command and Control Centre (ICCC) set up at Krishi Bhavan in New Delhi, a big-screen dashboard of all digital innovations in the sector. Officials described the ICCC as a "significant leap forward" in leveraging technology for the advancement of agricultural practices.

What is the Krishi ICCC?

The ICCC is a tech-based solution involving multiple IT applications and platforms, which is designed to help in making informed decisions. The centre is housed in the Ministry of Agriculture & Farmers' Welfare, which is responsible for legislation, policy formation, and implementation of initiatives in the agriculture sector.

The ICCC uses state of the art technologies such as artificial intelligence, remote sensing, and Geographic Information Systems (GIS) to collect and process large amounts of granular data — on temperatures, rainfall, wind speed, crop yields and production estimations — and presents it in graphical format.

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What do you get as the visual output?

On eight large, 55-inch LED screens installed at the ICCC, you can see information on crop yields, production, drought situation, cropping patterns (geographic region-wise and year-wise) in map, timeline, and drill-down views.

You can also see the relevant trends (periodic and non-periodic), outliers, and Key Performance Indicators (KPIs), and receive insights, alerts, and feedback on agriculture schemes, programmes, projects, and initiatives.

The ICCC uses platforms including the Krishi Decision Support System (DSS) to collect micro-level data, process it, and present the macro picture.

The ICCC has a contact centre and a helpdesk facility, with the operator's handset capable of being converted into a call centre. If needed, farmer beneficiaries can interact directly with officials or the Minister through video conferencing facilities.

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What is the objective of the ICCC?

The ICCC will enable comprehensive monitoring of the farm sector by making available at one place geospatial information received from multiple sources, including remote sensing; plot-level data received through soil survey; weather data from the India Meteorological Department (IMD); sowing data from Digital Crop Survey; farmer- and farm-related data from Krishi MApper, an application for geo-fencing and geo-tagging of land; market intelligence information from the Unified Portal for Agricultural Statistics (UPAg); and yield estimation data from the General Crop Estimation Survey (GCES).

The integrated visualisation of the data will enable quick and efficient decision-making by the The ICCC ecosystem can be linked with the PM-Kisan chatbot going forward.

Can the command and control centre generate individual farmer-specific advisories?

Going forward, the ICCC can create an ecosystem based on which individual farmer-level advisories can be generated through apps like Kisan e-mitra, a chatbot developed for PM-Kisan beneficiaries.

The AI-/ machine learning-based system will identify a farmer through his/ her mobile number or Aadhaar, and match it with the farmer's field information obtain through land records, historical crop sowing information from the crop registry, weather data from IMD, etc. It will then generate a customised advisory in the local

language of the farmer. For this, the system will use the Bhashini platform that allows translation into several Indian languages.

PRACTICAL APPLICATIONS

FARMER'S ADVISORY: The ICCC allows visualisation of GIS based soil carbon mapping as well as soil health card data for a particular district together at one place. "This, when visualised with weather-related data from IMD for the selected district, will allow a customised and authentic advisory to be sent to the farmer about the type of crops that can be grown, and water and fertiliser requirements," an official said.

DROUGHT ACTIONS: According to officials, increase or decrease in yield from a specific region (as per GCES data) can be correlated with weather, rainfall, and other information visualised through the Drought Portal, enabling the administration to understand the reason for increase/ decrease in yield and to take decisions proactively.

CROP DIVERSIFICATION: An analysis of crop diversification maps, together with field variability for paddy, will enable decision-makers to identify regions with scope for diversified cropping, so that farmers can be advised accordingly.

FARM DATA REPOSITORY: Krishi Decision Support System (K-DSS), a platform under development, will act as an agriculture data repository. Integrated spatial and non-spatial data will be superimposed as a layer on the GIS map, and various AI/ ML models would be run on the data. The K-DSS will help in evidence-based, efficient, and data-driven decision-making, and assist in preparing customised advisories for farmers.
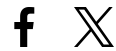
VALIDATION OF YIELD: Yield as captured through Krishi MApper can be analysed with the yield generated through GCES application for a plot.

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First uploaded on: 27-03-2024 at 07:07 IST

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