

# Crop Yield Forecasting

A need for quantitative Statistical crop yield forecast outlooks has been felt for quite some time. A beginning towards its realization has been made by undertaking a study of past crop yield in relation to meteorological parameters, principally rainfall and temperature.

## Quantitative Forecast of Crop Yield

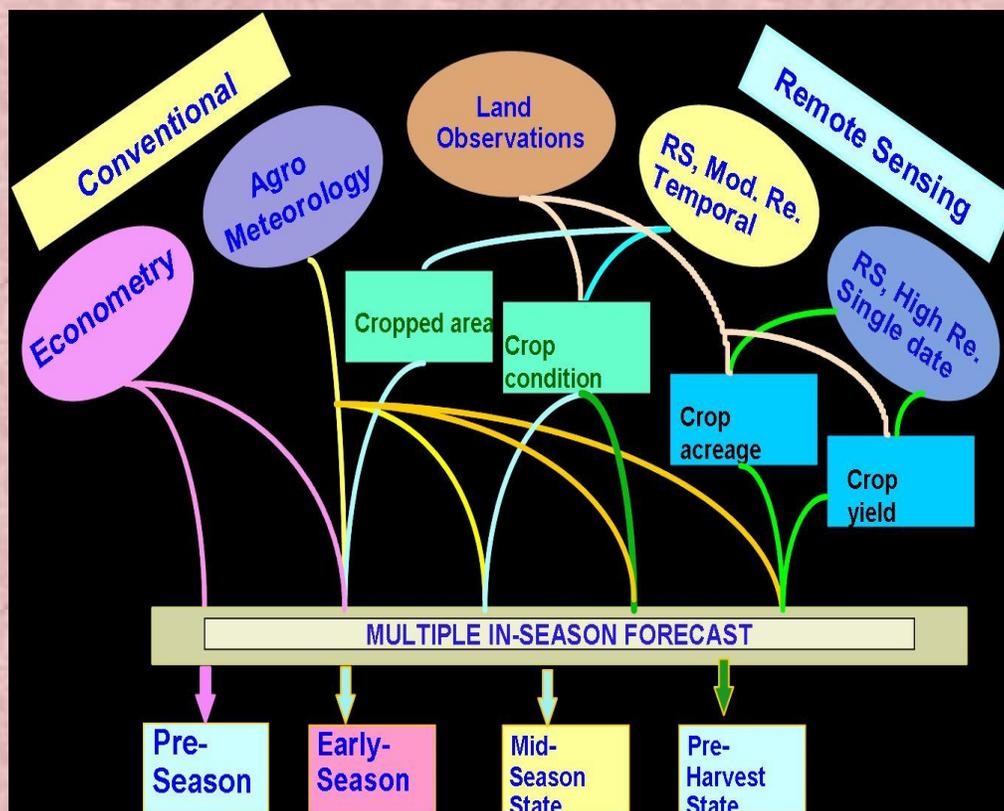
Based on crop weather studies, crop yield forecast models are prepared for estimating yield much before actual harvest of the crops. By use of empirical-statistical models using correlation and regression technique crops yield are forecast on an operational basis for the country. Meteorological parameters at various crop growth stages along with technological trends are used in the models.

**Based on these models, monthly interim forecast is prepared for the crops and is supplied to the Planning Commission, Directorate of Economics and Statistics, Ministry of Agriculture and Co-operation, Department of Science and Technology.**

## FASAL: Forecasting Agricultural output using Space, Agro-Meteorology and Land based observations

Under Integrated Agromet Advisory Services scheme of IMD, a network of 130 Agromet Field Units (AMFUs) and 23 State AAS Units of IMD (Fig 1) is functioning in the country. These centres are located at different State Agricultural Universities (SAUs) / ICAR Institutes; IITs in different Agroclimatic zones of each state. Out of these, the work of crop yield forecasting will be undertaken at 46 principal AMFUs and 23 State AAS Units of IMD located in the states. It is planned that setting up of infrastructure and the developmental works of the yield forecast models by way of generating field data from the experimental plots will be carried out

simultaneously in the AMFUs in different States in consultation as well as coordination with the Agricultural Meteorology Division at Pune. Agrimet Division will ultimately generate State and National level crop forecast based on the district level forecast received from the AMFUs.



*Forecasting Agricultural output using Space, Agro-meteorology and Land based observations (FASAL)*

Crop acreage forecast (F1) at planting stage; mid season forecast (F2) for both acreage and crop yield and pre-harvest yield forecast (F3) will be provided by IMD using agromet models during kharif as well as Rabi season for the crops. Forecasting of crop yield would be made for 15 crops like Kharif Rice, Wheat, Winter Potato, Cotton, Sugarcane, Mustard, Rabi Sorghum, Rabi Rice, Jute, Kharif Sorghum, Kharif Maize, Kharif Bajra, Ragi, Kharif Groundnut and Rabi Groundnut. The objective of the project is to develop, validate and issue multiple crop yield forecast for major crops at mid season (F2) and pre-harvest stage (F3). The level of crop yield forecasting would be at district/ Agroclimatic zone/ state/ national level. Implementation of the project will enable DAC to make more accurate forecast of production for major crops of the country at different stages of crop growth. These production estimates would facilitate various decision-making processes of the Government.

## Research and Development

The Agrimet IMD Pune Division has done pioneering research in the field of Agricultural Meteorology and has published over 400 research papers/reports. The work done since 1932 can be broadly grouped into the following categories.

- [Microclimatic study](#)
- [Cropping patterns](#)
- [Sowing dates](#)
- [Weather and Phenology of Crops](#)
- [Remote sensing applications](#)
- [Agroclimatic Classification](#)
- [Adverse weather phenomena](#)
- [Water use management](#)
- [Crop weather analysis](#)
- [Crop protection](#)
- [Drought Studies](#)
- [Dry Land Farming](#)
- [Agrometeorological observations with state of art instruments](#)