

## Agromet Advisories – a tool for farm improvement

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### Introduction

India, a country with 70 % population engaged in agriculture, being considered as an agriculture based country. It receives grand period rainfall from South west Monsoon (Except Tamil Nadu, which receives its rain during NE monsoon season and parts of Jammu Kashmir due to Western Disturbances) The success and failure of the crops in the large parts of the country depends on the various weather and climate related risks in agriculture, limited water resource, drought, floods, desertification, hails etc. Weather induced crop variability accounts for about two thirds of crop productivity. Effective weather and climate information services help to develop sustainable and economically viable agricultural system, ensure the decision making of the farmers and improve the management of agricultural risks, improve production and quality by reducing agricultural losses and risks.

Activities of agro meteorology in India started with setting up the division of agro meteorology in Indian Meteorological department (IMD) during 1932 under the guidance of Prof LA Ramdas, considered as the Father of Agro meteorology. IMD has 35 meteorological observatories spread all over the country. The main forecasting centres are at Chennai, Mumbai, Nagpur, Delhi and Kolkata. These centres prepare weather report based on all the information decoded with significant maps and charts which serve as a principal means for making weather forecasts for the public through All India Radio, television news papers, weather phones etc. Weather reports are published daily in newspapers. The IMD in collaboration with State Departments of Agriculture, in 1975 initiated the service called Agro meteorological Advisory Service (AAS) functioning from 17 units providing information on weather, growth stage of crops and crops conditions and impact of weather for the next two days. Some of the agro met advisory services are Crop Weather Calendars, Farmers weather bulletins.

IMD, Indian Meteorological Department has established a network of observatories to meet the present and future needs. The Agro met Advisory Services rendered by IMD, Ministry of Earth Sciences (MoES) provide accurate, locally appropriate climate and weather real time information to help the farmer take the appropriate decisions in efficient utilization of resources and take appropriate measures during the extreme conditions which will improve agricultural production both in quality and quantity.

The Union Science and Technology Ministry launched a new District Agro meteorological Service (DAAS) during June 2008 to offer more precise advice to the farmers. Agrometeorological Advisory Service (AAS) now offer district wise advisories, which earlier used to operate at the level of agro climatic zone. Earlier advisory bulletins were prepared at the zonal level but now it is done at the district and block level

## **WEATHER FORECAST AND AGROMET INFORMATION**

### **Preparation of agro advisory bulletin**

Quantitative district level medium range weather forecast for parameters like rainfall, maximum temperature and minimum temperature, cloud cover, wind direction and speed up to 5 days is issued from 1<sup>st</sup> June, 2008 once or twice a week on every Tuesday and Friday. IMD, New Delhi produces products with these viable forecast information using Multi Model Ensemble(MME) which are disseminated to the Regional Meteorological Centres and Meteorological Centres of IMD located across the country. These information after value addition using the synoptic interpretation of model output are utilized by AMFU's, collocated with SAU's (24 AFMU centres), institutes of ICAR, IIT etc. for preparation of district level advisories bulletin twice a week i.e Tuesday and Friday.

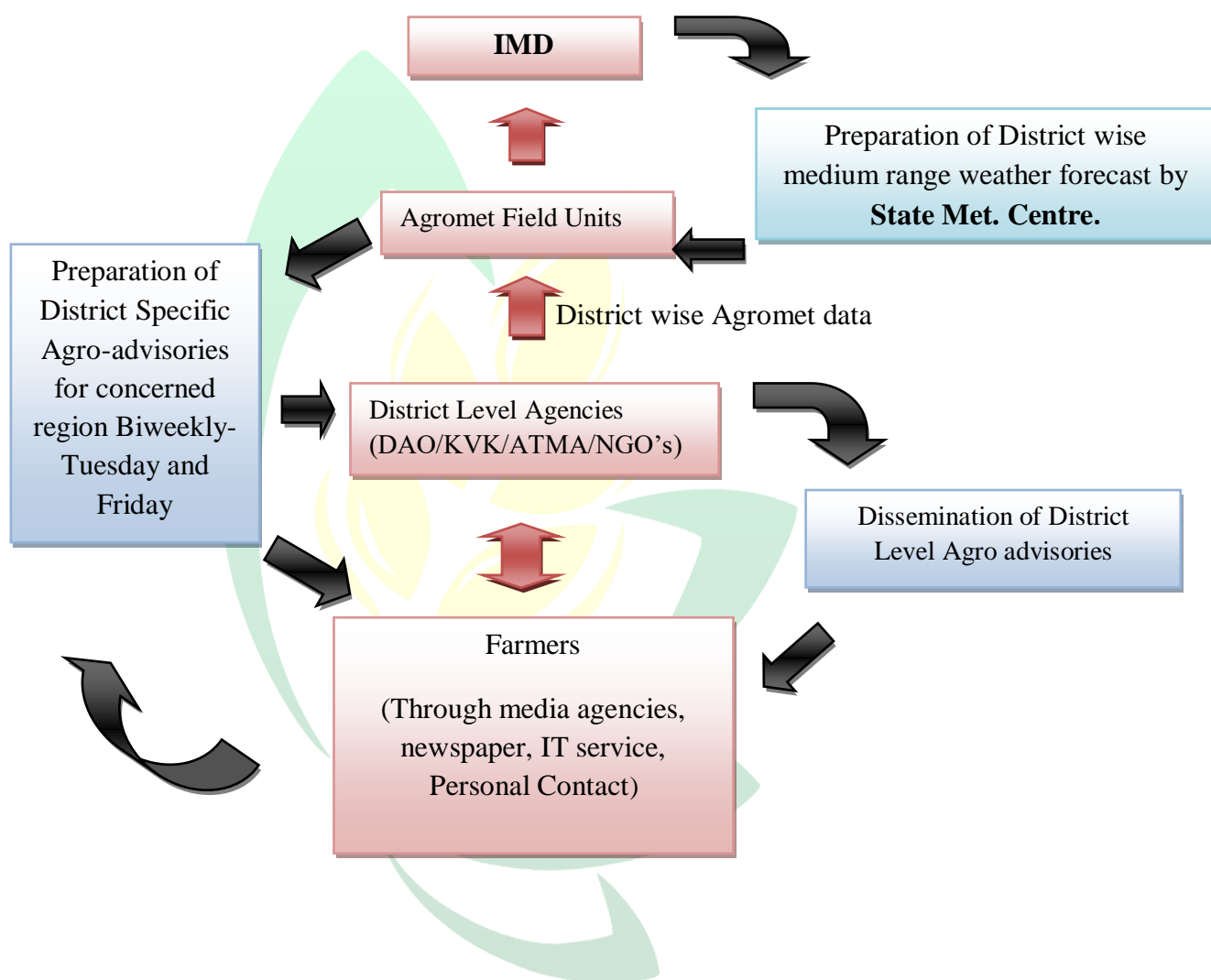
### **Format of Agro advisory Bulletins**

The Agro met advisory bulletins include

- Weather information ( past week weather and future week weather)
- Crop information
- Advisory.

### Dissemination of Agro advisory Bulletins

The advisories would be disseminated to the farmers through various media, including private TV channels, 000000FM radios and NGOs at grass root levels apart from AIR, doordarshan, newspapers, District Agricultural Offices and websites of IMD and SAU's. Public Private Partnerships like IFFCO, NABARD-SMS and IVR, Reliance Foundation etc.



### Types of forecast

**Now casting-** A short range weather forecast having a validity of less than 24 hours

**Short range forecasts-** Forecasts having a validity of 1to 3 days. It is helpful in irrigation scheduling, timing of agricultural operations and plant protection measures.

**Medium Range Weather forecasts-** These forecasts have a validity period of 4 to 10 days. This type of weather forecasting is mostly used for preparation of advisories. The decisions like sowing time, sowing depth, scheduling irrigation, time of harvest, plant protection and labour requirement are taken with the help of medium range weather forecasting.

**Long Range Weather Forecasts-** Forecasts having validity period beyond 10 days and is being issued for a season. IMD issues long range forecasts for southwest monsoon rainfall and onset date for northeast monsoon rainfall and winter precipitation over northwest India. Predicting crop yields , decision on cropping pattern , crop and cultivars selection and soil moisture management are made easier with the help of these type of forecasts.

**Local Forecast-** In local forecast, whether any weather phenomenon is expected, its intensity, frequency and time of occurrence is indicated. It is a valid for a radius of 50 km around the station and is updated 4 times a day.

**Satellite in weather forecasting** – A satellite takes pictures of earth in the visible and infrared spectra and transmits to the meteorological satellite ground receiving station. Infrared images make it possible to determine the temperature of the earth's surface and cloud temperature and its height. Weather satellites are providing invaluable synoptic information on cloud formation, cloud top temperature, winds at cloud levels, surface temperature of the sea, snow cover etc. Meteorological satellites are useful into estimate precipitation, maximum and minimum temperature, soil moisture, ET etc. Satellite Remote sensing technology is useful to gather information beyond simple visual technique with respect to extent of coverage, spectral and spatial resolution speed and consistency of the data interpretation, cost effective and reliable information etc. It can be mainly use for crop production forecasting, drought monitoring and its assessment, soil mapping, mapping of wastelands, land use mapping, flood mapping and damage assessment.

### **Crop Weather Calendars**

**Crop** Weather calendars are prepared for the major crops grown in the country. These calendars give the weather conditions detrimental to the crops at different growth phases and are based on the information from authorities and knowledge of normal weather conditions.

The calendars serve as a guide for the issue of warnings to farmers. The calendar has three parts:

Bottom part: Provides the information related to the phenological stages of the crop and about the months.

Middle part: Provides normal weather conditions required for optimum growth. It includes parameters like rainfall, no of rainy days, minimum and maximum temperature, pan evaporation and sunshine hours.

Top part: Provides information regarding the weather abnormalities and preventive measures. This part is divided into different sections according to dry spell, high wind, heavy rainfall and cloudy weather.

### **Conclusion**

Agro meteorological advisory services provide location specific inputs to the farmers as advisories that can make a tremendous difference to the agriculture production by taking the advantage of benevolent weather and minimize the adverse impact of malevolent weather. This has a potential to change the face of in terms of food security and poverty alleviation with the change in climate which are two of the major challenges with the rising population in the world.

### **References**

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