Current Agriculture Trends: e-Newsletter

Weather Forecasting for Agriculture

**Mamoni Panging*,
Pranjit Sutradhar[1]**

Department of
Agrometeorology, Assam
Agricultural University*
Department of Agronomy,
Assam Agricultural University[1]

Open Access

*Corresponding Author
Mamoni Panging*

INTRODUCTION

Weather is the most important factor determining the success or failure of agricultural and allied enterprises. Agriculture and farming are mainly dependent on weather and climate. Weather manifests its influence on agricultural operations and farm production through its effects on soil, plant growth as well as on every phase of animal growth and development. It has been reported that around 36mha agricultural area was affected due to hydro meteorological calamities since 2016. And at the same time losses due to harvesting, storage, pest, parasites, crop and animal disease are highly influenced by weather. In our country, there is an extensive damage in crop production due to cyclonic storm, flash floods, floods, landslide and cloudbursts. Crop damaged due to floods in one part of the country and at the same time there is a severe drought ruining crop production in another part of the country. Occurrence of erratic weather are beyond human control. But it is possible to minimize the crop losses by making adjustment with the coming weather through timely and accurate weather forecast. It can greatly help in daily agricultural operations and improving yield and quality of agricultural crops.

Weather forecasting is a way of predicting things like cloud cover, rain, snow, wind speed and temperature before they happen (Cahir, 2013). The main ways the weather can be forecast include looking at current weather conditions, tracking the motion of air and clouds in the sky, finding previous weather patterns that resemble current ones, examining changes in air pressure and running computer models (Banerjee *et al*., 2003). The weather information of a particular place also provides guidelines for seasonal planning and selection of crops most suited to anticipated climatic conditions. The weather elements which influence the agricultural operations and crop production have different predictions for different places.

Types of weather forecast and their applications in agricultural operation and planning

Weather forecasts for agriculture can be grouped into short range forecast (upto 48 hours), extended forecast (upto 5 days) and long range forecast (4 weeks to the season).Each play a important role in farm operations and planning of agricultural activities.

Short range weather forecasts are for a period of upto 48 hours. The forecast emphasis on high and low temperature, wind velocity and direction, sunshine duration, time and amount of precipitation and relative humidity. It has forecast accuracy of 70-80 percent.

Application

- The requirements for irrigation and crop growth are affected by weather variability. So, forecasting helps in scheduling irrigation
- Timing of field Protection of plants from frost
- Efficiency of chemicals
- Spray applications
- Labour efficiency-workable hours
- Insect and disease effects
- Soil workability
- Livestocks protection from cold and heat
- Animal production rate
- Drying rate of soil

Extended forecast (upto 5 days) emphasis on change of weather type, sequence of rainy days, normal weather hazards in farming such as strong winds, extended dry and wet spells. It has a forecast accuracy of 60-70 percent.

Applications

- To determine the depth at which seed be sown to achieve an optimal rate of seeding emergence
- To determine weather or not to sow a crop in this period

- To take account of expected rainfall to plan irrigation
- To decide whether or not to harvest a crop in this period
- To ensure maximum efficiency of spray programme
- To prepare in time for the protection of crop against frost
- To animal feed requirement

Long range forecast (4 weeks) emphasis on abnormalities in temperature and precipitation. It has forecast accuracy of 60 percent.

Applications

- In soil moisture management
- In pasture management
- In determing irrigation frequency
- In harvesting crops for short term storage where adverse conditions are likely to interfere
- To decide whether to put perishable products into short term storage to even out supplies to market
- In avoiding chemical sprays when disease or pests are unlikely to be troublesome.

CONCLUSION

Weather forecasting is crucial since it helps to determine the future climate change and also paly important role in planning current and future agricultural activities. Weather factors contribute to optimal crop growth, development and yield. The quality crop produce during movement from field to storage and transport market depends on weather. Weather forecast that provide short range, extended and long range weather data can be the right tools for farmers who is uncertain of the coming weather. Farmers equipped with the weather information can minimize the crop losses occurred due to several weather phenomenon.

REFERENCES

Banerjee, S. K., Chattopadhyay, N. and Das, H. P., 2003, Study of weather-based agricultural folklore of West Bengal. Pre-Published Sci. Rept. No.1, I.M.D.

Cahir J. J., 2013, Weather Forcasting. Encyclopedia Britannica. Accessed on June 2013 (http://www.britannica.com/EBchecked/topic/638321/weather-forecasting).

Mavi, H.S. (2017).Introduction to Agrometeorology. Oxford & IBH publishing Co. Pvt. ltd. New Delhi