



## Setting up of an Agrometeorological Observatory

**Satish Kumar\***, KK Agrawal, ML Kewat and BL Kumhar

Department of Agronomy, Faculty of Agriculture, Rabindranath Tagore University  
Bhopal, India

**\*Corresponding Author:** Satish Kumar, Department of Agronomy, Faculty of Agriculture, Rabindranath Tagore University Bhopal, India.

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### Introduction

Weather plays a crucial role in the life cycle of a crop. The crops are directly influenced by weather conditions from sowing to maturity. Weather exerts its influence on agricultural production through its effect on soil, plant growth and development and yield. Weather has a great influence on insects and plant diseases. In scientific research, the recording and analysis of meteorological data has assumed a paramount importance, therefore, there is a need for high precision and accuracy of the data. To study the effect of various weather elements, it is essential to measure these elements regularly, so that day to day fluctuations may be studied. This can be done by using various meteorological instruments installed in the observatory with ideal exposure in the experimental field.

The meteorological observatory is a network of various meteorological instrument in a symmetric way over a site which is fully representative of the crop-soil-climate of that area. Various weather parameters are measured with the help of these instruments. The main weather parameters are air temperature, soil temperature, relative humidity, evaporation, rainfall, sunshine hours, solar radiation, windspeed and wind direction.

### Objectives

To acquaint the students with the procedure of installation of an agro meteorological observatory.

### Selection of site

Following points should be kept in mind at the time of setting up an agro meteorological observatory

- The size of the observatory should be 54m (N-S) X 36m (E-W) so that the meteorological instruments may have an ideal exposure.

- The meteorological observatory should be set up within the experiment fields.
- The site of the meteorological observatory should be, representative of the crop-soil-climatic conditions of the area.
- The enclosure of the observatory should have a drought resistant, slow growing grass so that the soil may not be affected during dry conditions.
- High buildings, big trees and water channels should be avoided on the eastern side of the observatory.
- Water logging within the observatory should be avoided.
- Periodic grass cutting should be done within the observatory to provide ideal exposure to the meteorological instruments.

### Layout plan of meteorological observatory

While installing the instruments, it is required that the exposure of one instrument should not be affected by the exposure of another instrument. Therefore, the exposure of the rain gauge should not be affected by the exposure of stevenson screen or by the exposure of sunshine recorder. Fencing should not affect the exposure of the instruments. Meteorological instruments should be kept based on the following guidelines

- Find out the N-S direction and measure the length and breadth of the selected site.
- There should be an ideal distance between various instruments.
- The distance between the instruments should be fixed according to the dimension of the observatory and the number of instruments to be installed.
- The site should be fenced up to a height of 1.2 m fixed to the post of 5.0 cm thickness iron of a height of 2.0 m. These post are kept at a distance of 2.5m from each other.

### Precautions

- The instruments should be according to the specifications of India Meteorological Department (IMD).
- The installation of the instrument should be made according to the national standard.
- The exposure of the instruments should be such that observations of one instrument should not affect the observations of other instrument.
- Trained observer should record the observations according to the guidelines laid down by IMD. Moreover, he should be able to handle and record the data efficiently.
- The layout plan should be kept in the permanent record.