

## ***ABSTRACT***

This research aims to monitor the quality of rainwater as an indicator of potential pollution that can affect the growth and health of rice plants. In this research, measurements were carried out in four main sectors: air, water, land and irrigation, as a comparison. The rainwater and air quality measuring instruments used are equipped with real-time technology, while measurements of irrigation water and soil parameters are carried out conventionally. The parameters measured in rainwater include pH, TDS (Total Dissolved Solids), EC (Electrical Conductivity), temperature, and dissolved oxygen (Dissolved Oxygen) levels, while for irrigation water the parameters observed are pH, DO (Dissolved Oxygen) , and temperature. The parameters measured in soil are pH and temperature, while for air, the parameters analyzed are PM2.5, which is an indicator of air pollution. The data collected from these measurements will then be validated using Jupyter Notebook to filter out bad data so that the resulting data can be trusted. After the data validation stage is complete, data analysis is carried out to evaluate the potential for rainwater pollution on rice plants. Analysis was carried out on each parameter from each measurement sector to determine the effect of rainwater on damage to rice plants by looking at the concentration of irrigation water and soil pH. From the research carried out, it can be seen that rainwater has an effect on soil pH and irrigation water. When it rains and the pH of rainwater falls, the PM2.5 concentration also falls. This happens because high rainfall can cause a washing out process or washing out pollutants so that PM2.5 accumulates in rainwater. This can affect the pH of irrigation water and soil. It is proven that when the pH of rainwater is read, the pH of irrigation water and soil also decreases. Thus it can be said that rainwater can affect the quality of rice plants indirectly. Therefore, with this research, the hope is that the data and analysis obtained can help farmers provide a more comprehensive understanding of the impact of rainwater quality on agriculture, especially on rice crops, as well as provide valuable insight in developing more effective environmental protection strategies.

***Keyword : Rain, Rice, Dissolved Oxygen, Soil, Measurement, Irrigation, Air, Pollution***