Implementation of Image Processing on Disease
Rice Plant Leaf Disease with CNN Method
(Case Study of Tuban Regency)

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ABSTRACT

Rice plants have a very important role in Indonesia's agricultural sector as one of the main commodities in meeting food needs. However, rice production is often hampered by crop diseases, which can cause significant losses to farmers. The use of digital image technology, especially the Convolutional Neural Network (CNN) method, has opened up new opportunities to detect leaf diseases in rice plants more quickly and accurately. This research is focused on Tuban Regency, which is one of the largest rice producing regions in East Java. In this study, the steps taken included collecting image data of healthy rice leaves and contracting diseases, pre-processing image data, training CNN models to classify disease types in rice leaves, and evaluating the accuracy of CNN models. Research results show that CNN models with Xception architecture achieve an accuracy of 0.9853 or 98.53% which is capable of identifying certain types of images such as Xanthomonas oryzaepv. These include leafblight disease in leaves), Pyricularia oryzae Cav (blast disease in leaves), Brown Spot (Chocolate Scatter), Healthy (Healthy Leaves) and Random Data. The implementation of image processing technology using this method is expected to help officers and farmers quickly and accurately identify diseases in rice plants, thus reducing the impact of disease losses.

Keyword: *Image Processing, CNN, Rice Leaf Disease*