ABSTRAK

Pertanian padi memiliki peran penting dalam perekonomian Indonesia, namun kerap terganggu oleh penyakit daun seperti *blast, blight*, dan *tungro*. Penelitian ini mengembangkan metode klasifikasi citra daun menggunakan algoritma *Support Vector Machine* (SVM) untuk mendeteksi ketiga penyakit tersebut. Dengan 240 data citra daun padi, dilakukan pra-pemrosesan (*resizing, grayscale*, peningkatan kontras, dll), ekstraksi fitur *Local Binary Pattern*, normalisasi, dan validasi *5-Fold Cross-Validation* menggunakan kernel RBF. Model SVM mencapai akurasi 83,33%. *Precision* dan *recall* masing-masing untuk *blast*: 81% dan 85%, *blight:* 86,6% dan 97,5%, serta *tungro:* 82,29% dan 67,5%. *F1-score* tertinggi diperoleh *blight* (91,72%), terendah tungro (74,34%). Meski akurasi cukup tinggi, model masih kesulitan mengenali *tungro,* hal ini menunjukkan perlunya peningkatan metode pemrosesan data lebih lanjut.

Kata kunci: Penyakit Daun, Klasifikasi Citra, *Support Vector Machine* (SVM).

UBP KARAWANG

ABSTRACK

Rice farming plays an important role in Indonesia's economy but is often affected by leaf diseases such as blast, blight, and tungro. This study develops a leaf image classification method using the Support Vector Machine (SVM) algorithm to detect these three diseases. A total of 240 rice leaf images were used, with preprocessing steps including resizing, grayscale conversion, contrast enhancement, and others, followed by Local Binary Pattern feature extraction, normalization, and 5-Fold Cross-Validation using an RBF kernel. The SVM model achieved an accuracy of 83.33%. Precision and recall for each class were: blast (81% and 85%), blight (86.6% and 97.5%), and tungro (82.29% and 67.5%). The highest F1-score was achieved by blight (91.72%), while the lowest was tungro (74.34%). Although the overall accuracy is fairly high, the model still struggles to recognize tungro, indicating the need for improved data processing methods.

Keywords*: Leaf Disease, Image Classification, Support Vector Machine (SVM).*

UBP KARAWANG