

INTISARI

Klasifikasi Penyakit Bercak Daun Tanaman Jagung Menggunakan YOLO

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Penurunan produksi jagung di Indonesia disebabkan oleh Serangan Organisme Pengganggu Tanaman, yang berdampak pada munculnya penyakit bercak pada daun jagung. Identifikasi visual oleh manusia awam rentan terhadap kesalahan dan dapat menghasilkan interpretasi yang tidak akurat. Di sisi lain, identifikasi oleh *expert* juga sangat bergantung pada luas ladang, menjadikan pendekatan identifikasi manual kurang efektif karena memerlukan tenaga kerja dan mobilisasi sumber daya yang besar. Oleh karena itu, penelitian ini bertujuan untuk membangun sistem klasifikasi daun jagung berdasarkan empat kelas: daun sehat, karat daun, bercak kelabu, dan hawar daun. Pendekatan yang digunakan melibatkan penerapan YOLO (*You Only Look Once*).

Penelitian ini menguji kinerja klasifikasi penyakit bercak daun pada tanaman jagung secara *real time* menggunakan YOLOv5. Dataset yang digunakan berjumlah 4.397 gambar dan sampel uji berjumlah 56 lembar daun jagung. Hasil pengujian YOLOv5 pada jarak 25 cm menghasilkan nilai akurasi 69%, presisi 94%, *recall* 72%, dan F1-Score 81%. Sedangkan pengujian YOLOv5 pada jarak 50 cm menghasilkan nilai akurasi 55%, presisi 78%, *recall* 65%, dan F1-Score 71%.

Kata kunci—Klasifikasi, Bercak Daun, Tanaman Jagung, YOLOv5

ABSTRACT

Classification of Corn Leaf Spot Diseases Using YOLO

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The decline in corn production in Indonesia was caused by plant pest organisms, that caused spot disease on corn leaves. Visual identification by laypeople can lead to errors and inaccurate interpretations. On the flip side, expert identification heavily relies on the expanse of the field, making manual identification approaches less efficient due to the substantial workforce and resource mobilization they necessitate. Therefore, this research aims to develop a classification system for corn leaves based on four classes: healthy leaves, common rust, gray leaf spot, and leaf blight. The approach involves the implementation of YOLO (You Only Look Once).

This research tested the real-time performance of leaf spot disease classification in corn plants using YOLOv5. The dataset contains 4,397 images and the test sample consists 56 corn leaves. At a distance of 25 cm, YOLOv5 were able to reach an accuracy rate of 69%, a precision rate of 94%, a recall rate of 72%, and an F1-Score rate of 81%. Therefore, at a distance of 50 cm, YOLOv5 were able to reach an accuracy rate of 55%, a precision rate of 78%, a recall rate of 65%, and an F1-Score rate of 71%.

Keywords—*Classification, Leaf Spot, Corn Plants, YOLOv5*