ABSTRACT

THE COMPARISON OF RESNET-50 AND EFFICIENTNET-B0 ALGORITHMS ON LUMPY SKIN DISEASE(LSD)

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Cattle farming has significant economic potential as a source of food, industrial raw materials, and future investment. The health of cattle is crucial for producing high-quality meat, and Lumpy Skin Disease (LSD) has emerged as a new threat in Indonesia since 2022. This study uses Convolutional Neural Networks (CNN) with transfer learning methods to detect LSD in cattle. The models used are ResNet-50 and EfficientNet-B0, with performance evaluation through data augmentation to enhance the models' generalization capabilities. The LSD image dataset is divided into training and testing data with a ratio of 80:20, and the models are trained using the Adam optimizer with a learning rate of 0.00001 for 40 epochs. The results show that data augmentation for the EfficientNet-B0 model increases accuracy to 93.57%, compared to 90.71% without augmentation. Conversely, data augmentation for the ResNet-50 model decreases accuracy from 89.29% to 76.43%. This indicates that each model requires specific hyperparameter adjustments to achieve optimal performance. This research is expected to help farmers identify and prevent the spread of LSD, supporting the welfare of cattle and the farming community in Indonesia.

Keywords: Breeder, CNN, EfficientNet-B0, Lumpy Skin Disease, ResNet-50.