

A framework for measuring infection level on cacao pods

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Abstract:

Cacao farms worldwide lose up to 40% of their crops annually due to several diseases. To reduce the damage, farmers and agricultural technicians regularly monitor the well-being of their crops. But at present many still rely on visual inspection to assess the degree of infection on their crops, resulting to several errors and inconsistencies due to the subjective nature of the assessment procedure. To improve the inspection procedure, this research developed a framework for detecting and segmenting the infected parts of the fruit to measure the level of infection on the cacao pods based on k-means algorithm supplemented by a Support Vector Machine (SVM) using image colors as features. The highest attained accuracy was 89.2% using k=4 clusters. Results of this research provides promise in the implementation of the proposed framework in developing a more accurate assessment of infection level; thus, potentially improving decision support for managing cacao diseases.

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