ABSTRACT

Currently, oil palm plantation commodities still remains an important and promising . However, the managers of oil palm plantations are still experiencing difficulties in getting information about the state of oil palm plantations where they obtained the information manually, check directly to the oil palm plantation.

This final project creates a system that can classify palm trees by size using a method based on digital image processing . Samples that are detected is the image of a palm oil plantation around Pekanbaru, Riau Province that were taken using remote sensing. Before the image is processed and retrieved the information , first do the radiometric correction to remove the atmosfer using dark channel prior , then the 2D Gabor wavelet filters to extract features and KNN for classification .

The result of this final project is a system that can detect oil palm plantation using digital image processing-based methods. The result showed that the optimal value of the window slide for radiometric correction of the dark channel prior is 24 based on the value of PSNR. Highest accuracy of 90% obtained using the method of measurement Cityblock Distance with the value of k = 1 in the extraction of 8 traits without radiometric correction and 73,33% using Euclidean Distance with value of k = 1 with radiometric correction. The fastest average of computation time of 2,537 seconds obtained by extraction of 8 traits without radiometric correction and 43,83 seconds was obtained by extraction of 24 traits using radiometric correctionan.

Keywords : *Classification Trees Palm Oil , Digital Image Processing , Radiometric Correction , 2D Gabor Wavelet Filter , KNN*