Integration of UAV with Stress Detection Lens for Oil Palm Plantation Stress Monitoring

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Abstract: Managing oil palm plantation to be stress free can be a difficult task. To avoid decrease of yield in the plantation industry, early detection of palm tree disease by monitoring the stressed palms is an advantage. Monitoring stress palms can be done by using remote sensing technique. Plant stress detection lens integrated with the Unmanned Aerial Vehicle (UAV) can be used to monitor stressed palms. Stress detection lens attached to the UAV as done in this research make monitoring palms easy. The precision of this integration method was evaluated using the Normalize Difference Vegetation Index (NDVI). Data of Oil Palm NDVI was taken by the Green Seeker instrument. Using this approach, image captured with UAV showed unhealthy canopy appearing coral pink/glowing peach, while the healthy part of the canopy was dim to dark purplish. Validation of the method with on ground NDVI over the same area showed the method to be reliable.

Key words: UAV, Stress Detection, Oil Palm