

ABSTRACT.

Reports project the global population to reach approximately 10 billion by 2050, furthermore, we anticipate a 70% increase in the demand for food production. Climate change will significantly impact agriculture production, leading to a decline in rural populations and a rise in food waste (FAO, 2022). There is an urgent need for sophisticated technology capable of efficiently completing large-scale tasks within tight deadlines. Unmanned Aerial Vehicles (UAVs), which act as a remote sensing platform, are becoming increasingly popular in agricultural applications. They enable the collection of diverse field data without direct physical contact with the subject, and they play an important role in precision agriculture (PA) by providing precise information required for management decisions. However, despite its time-consuming nature and lower accuracy, manual data collection remains the most traditional and cost-effective method in agriculture. This study based on comparing the two methods: the aerial method, which involves using a UAV or drone, and the manual method. The study conducted data collection by assessing plant height, plot quality, and stand count in three distinct maize fields, identified as Locations A, B, and C. The goal was to understand how the use of UAVs in data collection can cover a larger area in less time than the manual method. The results demonstrated that the manual method consumes more time and covers a smaller unit area. Attempting to reduce working hours would necessitate an increase in the workforce, making it a labour-intensive method. UAVs (drones) collect data in less time and cover a large area with just one operator. To be able to combat the challenges of the future derived from increasing population and increasing food demand, it is inevitable to use remote sensing technology since it delivers precise and on-time data and covers huge areas with less manpower, which in turn delivers high production.