PERFORMANCE EVALUATION OF REMOTELY PILOTED AIRCRAFT SYSTEM FOR AGRICULTURAL SPRAYING
(DJI AGRAS T30)

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ABSTRACT

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The current study entitled "Performance evaluation of remotely piloted aircraft system for agricultural spraying (DJI Agras T30)" was conducted to characterize its spraying application performance based on droplet deposition data and optimize the operating parameters. The performance of the RPAS was evaluated using American Society of Agricultural and Biological Engineers (ASABE) Standards S386.2 (R2018) given its parameters. Each test will have three replicates at a single pass application of the aircraft to assess the reliability of the spraying system. Various flight parameters were also evaluated. The XR 11001VS spray nozzle tip was mainly consist of droplets ranging from 61 μm to 502 μm. The effective swath width of the aircraft varied from 8.8 m for 3 m/s and 8.0 m/s for 5 m/s, with an CV value of 50.9% and 55.2% respectively. The output rate of the aircraft was varied from 6.1 L/min and 11.2 L/min. The application rate varied from 38.5 L/ha and 46.7 L/ha.

Keywords: remotely piloted aircraft system; agricultural spraying; deposition; effective swath width; application rate

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