

# **Influence of Meteorological Parameters on UAV Spray Droplet Deposition Characteristics**

## Candidacy Exam Manuscript

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### **Abstract**

Agricultural aerial spraying is the application of agrochemicals directly to the crops using aircraft. This method has significant advantages over traditional spraying techniques as it covers large areas quickly and efficiently. However, it can cause spray drift onto unintended areas, contaminating the environment, and pose health risks. With this concern at hand, unmanned aerial vehicles (UAVs) are gaining popularity nowadays. While research on UAVs for spraying exists internationally, studies on their performance and optimization are limited in the Philippines. Hence, this paper investigates the factors affecting UAV spray droplet deposition to optimize application performance. The first part discusses the evolution of agricultural spraying technology, the deposition and potential drift of aerial spraying, and the dynamics of UAV spray deposition. The second part discusses the principle of spray droplet settling and deposition. The third part connects the effect of temperature and relative humidity on droplet evaporation and deposition.