



Crop Spraying Drones deployed for Pest Control on Soya Bean Fields in Banket, Zimbabwe





Refilling Drone spray tank with water and pesticide





Drone flying over waterlogged field and dispensing pesticide



Agriculture Drone in field at the end of a flight mission

OVERVIEW	
Flying Labs	Zimbabwe Flying Labs
Geographic area	Banket, Zimbabwe
Date range	May 2023
Sector program	EcoRobotics
Main SDGs	GOAL 2: Zero Hunger
	GOAL 8: Decent Work and Economic Growth
	GOAL 13: Climate Action

SCOPE	
Project stakeholders	Stodart Farm
People impacted	A farmer and community members.
Number of people	An estimate of 20 people.
impacted	
Problem	Soya bean crop was infested with the African Bollworm pest and the farmer was not able to use conventional farming equipment like tractor drawn boom sprayer and pivot due to waterlogging
	after heavy rainfall.





Project objectives	 Use the crop spraying drone to fly over the waterlogged soya bean crop fields and spray a combined crop chemical of chlorpyrifos and lambda-cyhalothrin to protect the crop and kill the Bollworm and caterpillars. Save time by deploying drones to spray faster than traditional spraying equipment.
Scope	 Conducted site assessment of the farm and soya bean crop. Established existence of bollworm and caterpillar pests. Mixed crop chemicals into the spray tank and used less
	water than other spraying methods.3. Created a flight path and deployed the drone to dispense insecticide over the waterlogged fields with soya bean crop.
Outcome	Spraying over the soya bean crop was completed in a much faster time than traditional equipment like tractor drawn boom sprayer. The day after spraying was completed many of the bollworms had been exterminated, fallen off the crop and were seen on the ground.
	spraying drones to the farm workflow for pest and disease management.
Impact	The farmer will be able to produce better quality and higher crop yields due to swift action taken to deal with pests in their fields. This in turn means the communities will benefit from having more food available due to better and increased yields produced by the farmer.
Challenges	N/A
Next steps	The client plans to integrate drones into their pest and weed control management processes.

COMMUNITY ENGAGEMENT AND STAKEHOLDER SUPPORT	
Consent for field	N/A
operation	
Community	A group of farmers from the neighboring community came and
engagement activities	witnessed the spraying process on the farm.
Community groups	Community in general.
engaged with	
Community	About 15 farmers were in attendance.
attendance	
Community feedback	The community commented that for the spraying operation to be more effective, the drone requires a larger payload and that the cost charged for spraying with a drone only makes sense at scale.
Stakeholder support	N/A





FIELDWORK	
Size of area	173 ha or 1.73 km2
Drone	DJI Agras T30
Payload volume	30 litres
Type of active	Chlorpyrifos and lambda-cyhalothrin, Dragon 175 EC
ingredient	
Total volume sprayed	3712 litres
Flight plan software	DJI Smart Farm
Flight height	2,5m
Number of flights	141 flights
Time invested in	39 hours
fieldwork	

DATA & OUTPUT	
Analysis tools	N/A
Analysis outputs	Map of area covered
Final outputs shared with stakeholders	Flight logs and spraying report
Data sharing	Google Drive