Protecting Reeds from Root to Shoot

Sprouting along rivers, streams, and other wetlands, reeds grow slender and tall on the shore. A perennial crop, their tender shoots provide sustenance for various herbivores, while mature stems and roots provide the raw material for paper and other products. The reed, therefore, plays a valuable role year-round.

Reeds growing along the river

The reed is a major crop throughout the world, including China's Shishou City, Hubei Province. In 2017, 2,000 acres of the local crop fell to the attack of the Dimorphopterus spinolae, a species of beetle that favors grassy plants. At the height of infestation, farmers would find hundreds of the beetle on a single plant.

Infected reed leaves.

Under the request of the local agricultural authority, the Jishiyu Agricultural Service Team was sent to conduct aerial spraying to protect the vulnerable reed.

Field investigation by the head of the Hunan Reed Investigation Institution

The urgency of the situation called upon the service team to begin on June 3rd with their fleet of eight DJI MG-1S agriculture drones, as well as four more courtesy of a Wuhan agriculture company.

Spraying Conditions

Time	Jun 3, 2017	Location	Shishou, Hubei
Terrain	River shoal	Environment	Calm weather and open space

Dosage

Multiple pesticide and dosage forms were used in this spaying mission. During preparation, the team mixed pesticides in a way to maximize effectiveness.

Preparation Instruction

In a small bucket, operators mixed an emulsion of a small amount of water with Pesticide A, then mixed it with a larger bucket that contained half of the required amount of water for the solution. They similarly prepared Pesticide B and C, continuously stirring the solution the entire time.

Pesticide	Dosage Form	Effective Component and Concentration	Dosage (g/acre)
Biphenyl, Clothianidin	Suspending agent	37%	91.5
Beta-cyfluthrin	Microemulsion	5%	305
Organosilicon	Emulsion in water	Organosilicon	61

Operation Parameters

Reeds infected by the beetle were as tall as 3.5 m. Considering this situation, the team decided to employ the Intelligent Operation mode and set the key parameters as below to ensure even spraying.

Operation Mode	Intelligent	Flight Speed	5 m/s
Flight Altitude	2 m	Working Interval	4 m
Dosage (L/acre)	1	Nozzle Type	Fan shape XR11001

After just three days of focused work, the Jishiyu Agriculture Service Team successfully completed the entire task. On July 8, officials from the local agriculture intuition came to the field and to collect samples. Results showed a pest control rate of over 90%.

DJI MG-1S spraying the infected reeds.

Officials were satisfied with the result, speaking highly of the efficiency achieved by DJI's agriculture drones. They also requested the team to make a comprehensive aerial spraying plan to protect the reeds from pests throughout their lifecycle. With this directive, the MG-1S became a long-term partner to aid in the health and longevity of the valued wetland crop for years to come.