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Introduction of YAMAHA Unmanned Technology and activities progress in Thailand

Abstract

YAMAHA helicopter Unmanned Aerial Vehicle (UAV) has been used as an agricultural equipment to spray chemical in Japan for over 30 years. About 3,000 units are currently flying in the world and fields more than 7 million rai are sprayed every year. The model name of YAMAHA helicopter UAV is FAZER that has a gasoline engine of 400 cc and carries maximum 32 liters of chemical. The first advantage of FAZER is uniform spray by its well-designed spray system. The second is its speed. With speedy working, about 200 rai (based from performance in Thailand) can be sprayed per day per unit of FAZER. The third is safety. YAMAHA has training programs and helicopter operational know-how for pilots and reliable helicopter maintenance programs from long history and experience.

YAMAHA also has Research & Development project related to Unmanned Technology not only UAV but also Unmanned Ground Vehicle, etc, in the world. By using these kinds of YAMAHA technology, we'd like to contribute to society in the world.

YAMAHA is conducting several research to confirm efficiency of FAZER for agriculture use in Thailand. YAMAHA shows one of data about efficacy of FAZER for control of rice leaf folder and dirty panicle disease in paddy fields. Field studies by colorimetric method on rice were performed to compare the droplet density, spray deposition, spray run-off, spray drift deposition and to monitor the potential exposure of spray operators under actual working conditions. Four different application techniques, FAZER at the rate of 1.28 and 2.56 l rai⁻¹ and the normal spray application by using spray lance at the rate of 40 and 60 l rai⁻¹ were evaluated. The results indicated that FAZER provided more droplet density than the others. And spray deposition was not different among spraying techniques. In addition, FAZER could effectively reduce spray run-off and the operator exposure as compared with the traditional used. And the distance of spray drift deposition by FAZER was found 1-2 meters farther only compared with spray lance technique. To evaluate the bio-efficacy of spraying techniques, the first experiment was firstly monitored in field population of rice leaf folder treated with flubendiamide + thiacloprid 24% + 24% W/V SC at a dose of 12 ml rai⁻¹ on rice at tillering stage. Subsequently, effect of fungicide for control of dirty panicle disease when treated with tebuconazole + trifloxystrobin 50 % + 25 % WG was performed at a dose of 45 g rai⁻¹ on rice at panicle initiation stage and heading stage, respectively. The results showed that FAZER proved effective to control of rice leaf folder and dirty panicle disease as the traditional used and could reduce spraying time spent by more than 7 times.

This work offers a basic for making standard to test UAV, improved performance, and rational application by UAV in Thailand.



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Biography **Mr. Tomohiro Nagura**

Experience

2005-2010: Technical Sales Officer of Life Science Department in YAMAHA MOTOR CO., LTD.

2011-2013: Marketing Supervisor of Motor Cycle Department in YAMAHA MOTOR CO., LTD.

2014-2015: Marketing Supervisor of Unmanned System Department in YAMAHA MOTOR CO., LTD.

2016-2018: Business Development Manager of Unmanned System Business Development in THAI YAMAHA MOTOR CO.,LTD. (Thailand)

I and our team are conducting several research to confirm efficiency of YAMAHA Unmanned Aerial Vehicle (UAV) for agriculture use, and we are also planning to start business for providing effective solution with YAMAHA UAV in Thailand shortly.