Asia-Pacific
Economic Cooperation

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Agriculture Drones in Thailand: Opportunities and Challenges

Purpose: Information
Submitted by: Kasetsart University

Thematic Session on UAS: Flightpath to the Future
23 March 2023

Asia-Pacific Economic Cooperation

Agriculture Drones in Thailand Opportunities and Challenges

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Sub-Topic: Drones as enablers for precision agriculture

MPT - UAS: Flightpath to the Future

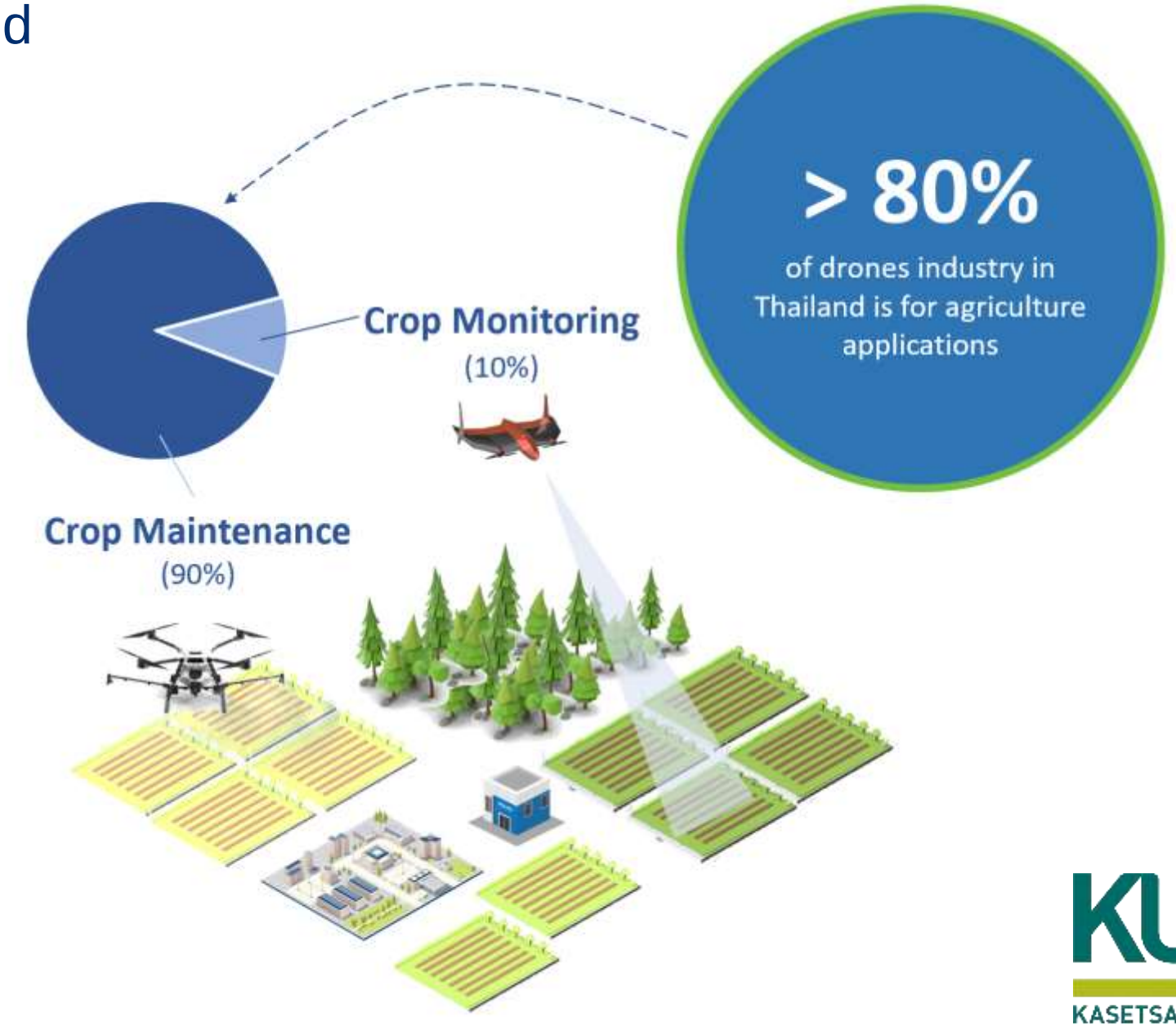
APEC TPTWG Aviation Experts Group Virtual Thematic Session

Date: 23rd March 2023

Advancing Free Trade for Asia-Pacific Prosperity

Agriculture Drones in Thailand

- Agricultural Drones were first introduced in Thailand in early 2009 primarily for the purposes of crop management i.e., fertilizer/pesticide spraying, crop monitoring, etc.
- Due to the efficacy of drone technology, ease of accessibility and cost-effectiveness, the number of agriculture drones in Thailand has grown rapidly, especially in the past 5 years.
- New regulations governing agriculture drone operation are going to be implemented in 2023 to facilitate increased agriculture drone utilization as well as to ensure the safety of users and the environment.



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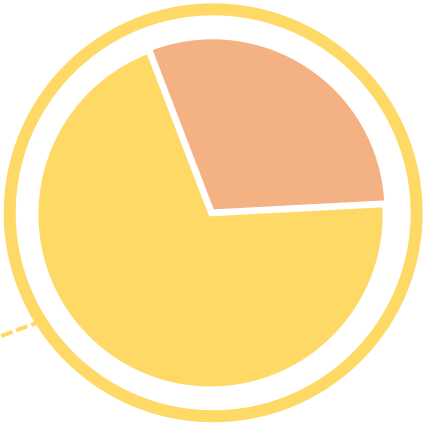
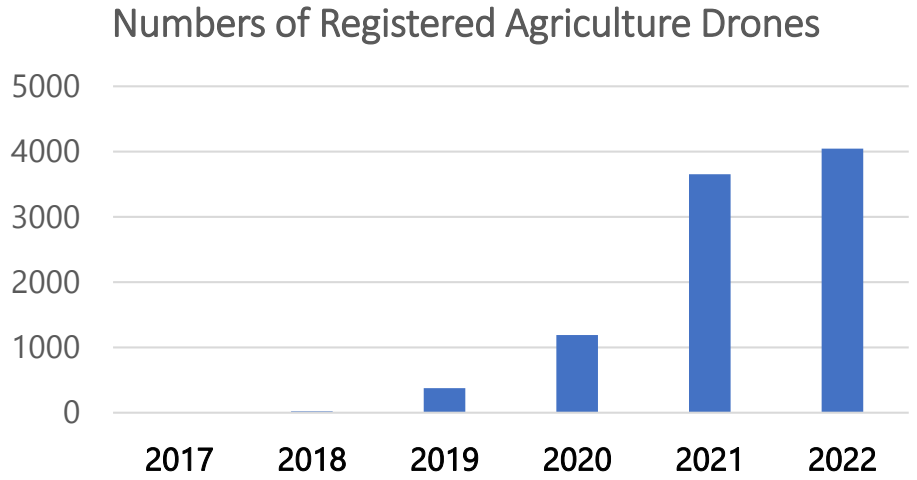
Facts and Figures

As of 2023, there is more than 10,000 registered agriculture drones nationwide operating for crop management for **30% (4 million ha) of all arable cropland in Thailand** (mainly spraying drones for fertilizers and pesticides).

Thailand
Arable Cropland
~13.8 million ha





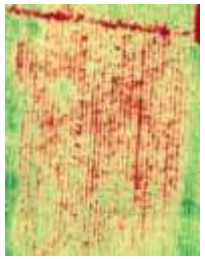
Ref: Drone registration statistics, Office of the National Broadcasting and Telecommunications Commission, Thailand

Rice 10.6 million ha

Sugarcane 2.6 million ha

Two main crop types that use drone for crop management.

Ref: Land Development Department, Ministry of Agriculture and Cooperatives of Thailand



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Agriculture Drones

Opportunities and Challenges

- **Growing demands in the agricultural sector**. Very cost effective solution for emerging countries (in comparison with other technologies).
- **Agricultural UAS ecosystem in Thailand is very ready** (manufacturer, service provider, infrastructures, farmers, etc.)
- **Government and regulators are now very supportive** (new regulations for agriculture drones are expected in 2023)
- Agriculture drones will be one of the key enablers for **smart climate agriculture** in the near future and will help with the reduction of over-fertilizing, precise crop monitoring, emission reduction, etc.)

- **Technology adoption by farmers.**
- **Batteries** are highly taxed imports and there are some environmental concerns (e.g. disposal)
- Drones are currently subject to 0% import tax for complete drones, which is a setback for **domestic drone manufacturers** who may have less of a competitive edge
- **Complex Airspace policy** – regulations governing airspace are still ever-changing but headway has been made (e.g. UTM system which is being piloted in Bangkok and certain cities to synchronize and regulate drone use by the general public)

Next Steps, Recommendations for APEC Policy Makers

Agriculture drones are aerial vehicles that vary in size with certain types potentially weighing more than the 25kg that is currently legally permitted. They may also operate in potentially high risk areas (i.e. air navigation safety zones near the airport). However, their specialized use and flying altitude of no more than 2-3 meters AGL in specified agricultural zones should mean that if specific guidelines and regulations are developed to facilitate their utilization, they can be deployed safely and efficiently for agricultural purposes and benefit.

The harmonization and simplification of regulation can be achieved with the cooperation of all relevant stakeholders (e.g. Ministry of Transport, Ministry of Agriculture), which will enable the state and/or relevant regulatory authorities to oversee the safe and effective deployment of agriculture drone technology).