IBM Newsroom

NSTDA and IBM Research Use AI to Transform Sugarcane Farming in Thailand with Mitr Phol

New research project is expected to improve the yield of sugarcane using AI, Internet of Things, Satellite Remote Sensing and Hyper-Local Weather Forecasting Data

Bangkok, Thailand – 5 March 2019: The National Science and Technology Development Agency (NSTDA) today announced a two-year research collaboration with IBM (NYSE: IBM) to improve the yield of sugarcane in Thailand. NSTDA and IBM, with domain knowledge support from Mitr Phol, the world's third largest sugar producer and the largest in Asia, will pilot an intelligent dashboard and mobile application to enable experts to access insights on crop health, soil moisture, pest and disease infestation risk, expected yield, and commercial cane sugar (CCS) index by leveraging the world’s most accurate weather data from The Weather Company and industry-leading AI, Internet of Things (IoT) and analytics capabilities.

Sugarcane is an important industrial crop used for sugar and bioenergy in Thailand and around the world. As the world’s second largest exporter, Thailand plays an important role in supplying sugar to the world market, with 9.4% of market share in 2017 [1]. In Thailand, sugar production is forecasted to yield 14.1 million metric tons in 2018-2019, up 3% from the previous year [2].

The Agronomic Insights Assistant is being developed by IBM researchers and is based on the IBM Watson Decision Platform for Agriculture and the IBM PAIRS Geoscope. These technologies integrate intelligent geospatial-temporal data (such as multispectral crop images captured by multiple satellites, soil data, digital elevation) and agronomic data (crop health, soil moisture level, pest/disease risk forecast, yield and commercial cane sugar index) with precise forecasts models from The Weather Company. This data is then combined with local sensing technology customized and enhanced for sugarcane farming in Thailand by NSTDA, and rich agronomic domain knowledge from Mitr Phol to provide actionable insights on water and nutrient stress, pest and disease risk, and agriculture production yield and crop quality index.

The Agronomic Insights Assistant will be piloted in the middle of this year on three sugarcane farms of up to one-million-square-meter. Upon the success of the project, farmers may be granted access to information that can help them assess and manage risks early, optimize productivity and ultimately increase their crop yield. With insights up to two weeks in advance and alerts on pests and diseases, stem borer and white leaf risk, hyper-local, short-term, and seasonal weather forecasts, it is expected that farmers will be able to plan specific actions such as irrigation, fertilizer application, and pesticide spray proactively to fight against threat of yield loss.

“As a driving force of national science and technology capability, NSTDA is committed to strengthen the country’s research and development, especially in the field of food and agriculture, which generates several billion baht a year in economic value and remains an integral part of the Thai way of life,” said **Dr. Narong Sirilertworakul, NSTDA’s President**. “Science and technology will help ensure sustainable growth and global competitiveness for Thailand. NSTDA is glad to collaborate with Mitr Phol and experts from IBM Research to create a new data-driven era of agriculture, starting with sugarcane farming, in Thailand.”

“Mitr Phol is committed to continuous innovation and adoption of best practices to increase the sugarcane's

farming productivity for the sustainability of all stakeholders," said **PH.D. Klanarong Sriroth, Head of Innovation and Research Development Institute, Mitr Phol Group**. "Joining forces with NSTDA to leverage IBM's AI, satellite remote sensing and advanced weather forecast system to maximize sugarcane productivity will be the game-changing move towards a Modern Farming practice with the use of Precision Farming for both Mitr Phol and agriculture landscape in Thailand."

"IBM is proud to conduct research with the goal to equip Thai sugarcane farming with relevant insights, and at the same time to support Thai government and business community by strengthening country's competitive capabilities in one of the key industries," said **Patama Chantaruck, Vice President for Indochina Expansion and Managing Director of IBM Thailand**. "The combined strengths of NSTDA and IBM in research and advanced technologies leveraging big data, analytics, AI, and IoT, together with domain expertise from Mitr Phol, represent the next frontier for smarter agriculture in Thailand, transforming the way some of the most traditional industries work."

"Factors such as climate change, population growth and food security concerns have propelled industry and government to seek new collaborative models grounded in data and pioneering innovations," said **Kathryn Guarini, Vice President, Industry Research, IBM Research**. "IBM Research looks forward to building similar public private partnerships across all industries to address the planet's greatest challenges."

Reference:

[1] Sugar Exports by Country by World's Top Export
[2] Thailand Sugar Annual 2018 by Global Agricultural Information Network, USDA Foreign Agricultural Service

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