News Release

November 14, 2022

Yanmar Holdings Co., Ltd.

Yanmar Demonstrates Autonomous Agricultural Machinery at Joint Thailand-Japan Project

Bangkok – Yanmar S.P. Company Limited, a leader in agricultural machinery in Thailand and Yanmar Agribusiness Corporation Limited, have joined in a project to adopt high-precision positioning technology for agricultural machinery in Thailand. This pilot project is aimed at boosting productivity and solving labor shortages in the agricultural sector. The project, supported by Japan International Cooperation Agency (JICA) and Thailand-Japan cooperation committee, included a demonstration of the operation of autonomous agricultural machinery equipped with GNSS technology at Sara Buri Province.

The project was implemented in line with the Thailand 4.0 economic model, a long-term economic strategic plan focusing on promoting the country's agricultural industry with the aim of increasing productivity and implementing cost reduction efficiencies for Thai farmers through the adoption of high-precision agricultural technology. To help the farmers achieve these goals, Yanmar has designed and developed agricultural

machinery and implemented a pilot project demonstrating the operation of 4 autonomous agricultural machinery models that are equipped with GNSS antenna, for efficient operation and high-precision position control.

Demonstrated agricultural machinery

For the demonstration, Yanmar chose 4 models of innovative agricultural machinery to conduct the demonstration of autonomous agricultural machinery. The YT5113A autonomous tractor and the YR8D auto rice transplanter are among Japan's most advanced agricultural machinery. The two other products demonstrated were the YH1180 combine harvester and the YM357A tractor, both of which are available on the Thai market. For this project, Yanmar used prototypes of the YH1180 and YM357A that incorporated automatic both Linear mode for autonomous forward movement and Auto mode for both straight maneuvering and steering operations. The system utilized data received from Thailand's National CORS Data Center (NCDC) GNSS correction data.

Farming using smart driverless tractors

Yanmar showcased its autonomous farming technology with a demonstration of 2 tractors working simultaneously - one for soil tillage and another for direct seeding - for example corn. The YT5113A driverless tractor worked at the front and performed soil tillage operations. The YT5113A was followed by the YM357A tractor equipped with automatic straight steering and performed a direct seeding operation. This simultaneous operation saves farmers both time and labor. Using a tablet containing rice field data and pre-specified working plan one operator can control both tractors, using GNSS-supplied data allowing simultaneous planting and coordinate finding. This revolutionary operation facilitates efficient, automatic planting on pre-specified rows.

Demonstrating the operation of two tractors working simultaneously.

Rice farming with the YR8D rice transplanter

Beside the two tractor models that allow simultaneous soil tillage and seeding, Yanmar also demonstrated the operation of the YR8D rice transplanter equipped with two operational modes: Linear mode for autonomous forward movement and Auto mode

forturn steering at both ends of the rice field. With a GNSS antenna, accurate location data can be transferred and positions for rice transplanting can be instantly located. The transplanter not only yields superior produce quality, but also helps save time, cost, and labor.

Rice transplanter with automatic turn steering.

Harvesting with the YH1180 combine harvester

Rice harvesting was done by the YH1180 combine harvester equipped with the advanced functionality of SmartAssist Remote (SA-R) for farm management and round-type steering wheel. The combine is fitted with Linear mode for automatic straight steering which also enables free maneuverability of the steering wheel. This is a new Yanmar technology that allows the operator to control the combine harvester more easily, to concentrate on operating the work equipment other than traveling. The combine harvester is also fitted with a grain tank yield sensor to accurately estimate harvest yields. The SmartAssist-Remote system implemented on the YH1180 supports farm management with advanced functionality that contributes to Thailand’s agricultural productivity.

YH1180 combine at the demonstration.

As a leader in agricultural technology, Yanmar is pleased to be part of the pilot social project aiming for technological development in Thailand to accelerate Thai society towards being a smart agricultural society as part of the country's 20-year strategic plan for agricultural promotion (Thailand 4.0). Each of our technologies has been developed to respond to modern farmers' need for both time and energy savings as well as the sustainable increase of productivity. In the future, Yanmar plans to adopt more information and communication technologies for our products and services to boost our customers' productivity, reduce their need for labor, and retain the company's position as a leader in sustainable agriculture.

About Yanmar

With beginnings in Osaka, Japan, in 1912, Yanmar was the first ever to succeed in making a compact diesel engine of a practical size in 1933. A pioneer in diesel engine technology, Yanmar is a global innovator in a wide range of industrial equipment, from small and large engines, agricultural machinery and facilities, construction equipment, energy systems, marine, to machine tools, and components — Yanmar's global business operations span seven domains. On land, at sea, and in the city, Yanmar provides advanced solutions to the challenges customers face, towards realizing A Sustainable Future.

For more details, please visit the official website of Yanmar Holdings Co., Ltd.
https://www.yanmar.com/global/about/

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