

Smart agricultural machinery in compliance with the Common Communications Standard (ISOBUS)

Production

Demonstration and implementation

Item: Agricultural machinery

Labor productivity enhancement

Outline

ISOBUS realizes electronic inter-operability beyond the frames of agricultural machinery manufacturers. Digital transformation (DX) of agricultural operations, such as variable fertilizing and spot chemical application are likely to be promoted through the practical use of agricultural machines compliant with ISOBUS.

Background/effect/note

In Europe and the United States, tractors and working machines compliant with ISOBUS have become standards (Fig. 1). The compliant working machines can electronically connect and exchange various data with each other beyond the frames of the manufacturers (Fig. 2). This will enable agricultural operations, such as variable fertilizing and spot application of chemicals based on image data acquired by drones, operation log acquisition, etc. DX of agricultural operations will also be promoted through data linkage with the cloud platform.

NARO developed the first domestic product of Electronic Control Unit (ECU) for working machines which acquired ISOBUS certification. This technology was transferred to a Japanese agricultural machinery manufacturer who developed a general-purpose ECU (Fig. 3) applicable to various types of agricultural machines and 3 types of ISOBUS-compliant agricultural machines. The general-purpose ECU has been commercially available since April 2022.



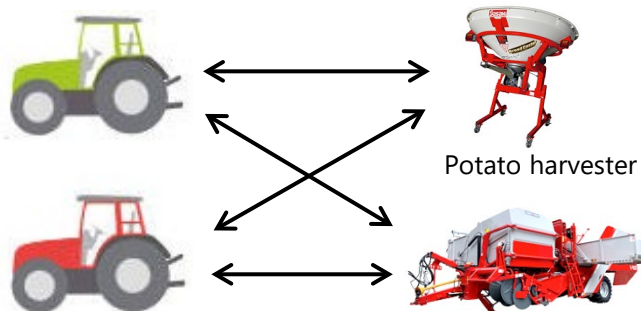
Fig. 1. ISOBUS certification marks



Fig. 3. Commercially available general-purpose electronic control unit (ECU)

ISOBUS compliant tractors

Fertilizer spreader



Potato harvester

Fig. 2. Image of data exchange through electrical connections between the tractors and the other machines

Technical details:



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https://www.naro.go.jp/publicity_report/press/laboratory/iam/152162.html (Japanese)

https://www.naro.go.jp/english/laboratory/iam/press_release/19july/index.html (English)