Yano Research Institute

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RESEARCH SUMMARY

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Smart Agriculture Market in Japan: Key Research Findings 2016

◆ Research Outline

Yano Research Institute has conducted a study on the domestic smart agriculture with the following conditions:

1. Research period: From July to September, 2016
2. Research targets: Smart agriculture market players, agricultural corporations, related organizations, and the concerned government agencies
3. Research methodologies: Face-to-face interviews with expert researchers, surveys via telephone/email, and literature search

<What is Smart Agriculture?>

Smart agriculture in this research indicates new agriculture that pursues further efficiency and adds values to the produce by aligning conventional agriculture with state-of-the-art technologies of robot and ICT to utilize the advanced technologies in farming from production to harvesting/sale. This approach aims for efficient production, lower costs, more secure food and safer labor environment.

<What is the Smart Agriculture Market?>

The smart agriculture market in this research is consisted of the following solutions:
1) Cultivation Support Solutions (Cloud farming, compound environmental control equipment, and production support solutions for stockbreeding) 2) Sales Support Solutions 3) Operational Support Solutions 4) Precision Farming (GPS guidance systems, autopilot, vehicle-type robot systems) and 5) Agricultural Robots (Please see Table 1 for details). Note that the research only includes domestic market. POS systems for agriculture, farm machines, or drones for agriculture are not included.

◆ Key Findings

■ Domestic Smart Agriculture Market Size in FY2015 Attained 9,724 Million Yen, Cultivation Support Solutions Occupying 30% of Entire Market

Size of the domestic smart agriculture market in FY2015 was estimated as 9,724 million yen. The details were as follows: Cultivation support solutions occupied about 30% of the entire market to achieve 3,067 million yen (Cloud farming 1,125 million yen, compound environmental control equipment 1,425 million yen, and production support solutions for stockbreeding 517 million yen); Sales support solutions 973 million yen; Operational support solutions 2,563 million yen; Precision farming 2,905 million yen (GPS guidance systems 1,005 million yen, autopilot 1,900 million yen); and Agricultural Robots 217 million yen.

■ Domestic Smart Agriculture Market Size for FY2022 Projected to Achieve 33,186 Million Yen

The domestic smart agriculture market is likely to be driven by cultivation support solutions until around FY2017, after which sales support solutions and operational support solutions are projected to expand around FY2018 and beyond. After that, precision farming is foreseen to grow with its technology enabling unmanned (automated) farm machines. Consequently, the market as a whole is expected to increase to 33,186 million yen by FY2022.

◆ **Report format**

Published report: “Smart Agriculture Market 2016”
Issued on: September 30, 2016
Language: Japanese
Format: 401 pages in A4 format
Price: 190,000 yen (The consumption tax shall additionally be charged for the sales in Japan.)

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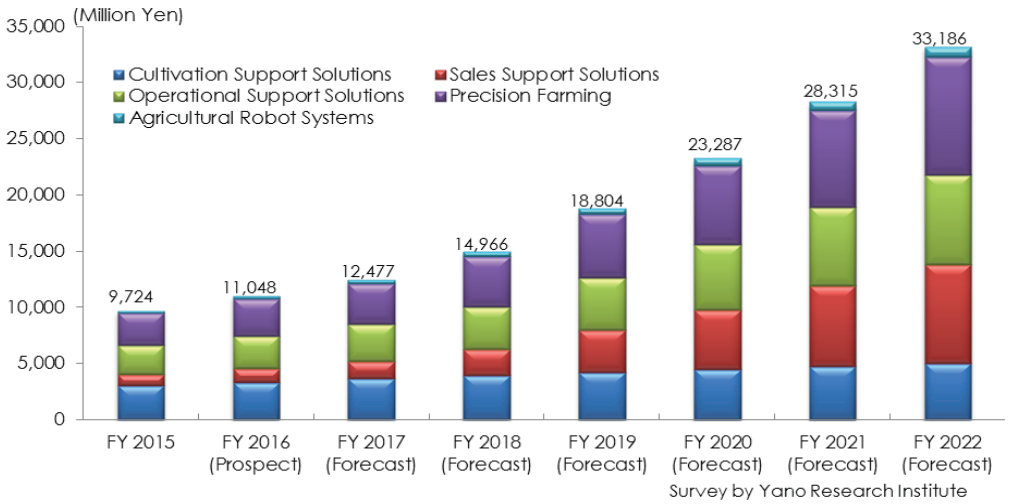
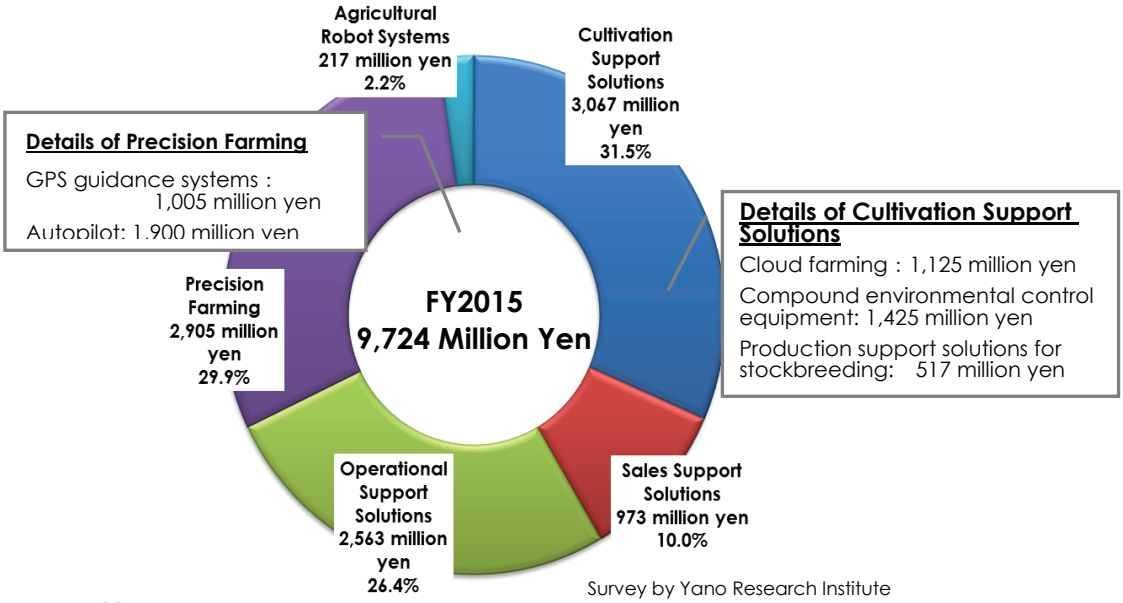
■ **Figure 1: Transition and Forecast of Domestic Smart Agriculture Market**



Notes:
1. The market size is based on the sales of the businesses.
2. POS systems for agriculture, farm machines, or drones for agriculture are not included in the market size.

■ **Figure 2: Composition Ratio of FY2015 Domestic Smart Agriculture Market by Solution**



Notes:
3. The market size is based on the sales of the businesses.
4. Since the numeric values have been rounded, the total values in the figure may not match.

■ **Table 1. Definition of Smart Agriculture Solutions**

Solution Name		Definition
Cultivation Support Solutions	Cloud Farming	A system to improve productivity by managing farm work data via internet.
	Compound Environmental Control Equipment	A system to automatically control heaters, heat-reserving curtains, ventilators and light shield to keep the best condition by measuring outdoor air temperature, temperature within the greenhouse, humidity, solar radiation, CO2 concentration.
	Production Support Solution for Stockbreeding	A solution to reduce costs in the stockbreeding business by using ICT to plan the breeding and raise efficiency.
Sales Support Solutions		1) Solutions to supply produce stably by analyzing the weather information and cultivation conditions to forecast the harvesting and demands of the produce, in order to support sales of farm produce in addition to 2) and 3). 2) Solutions to attain fixed quantity, timing, quality and price of the food businesses that procure farm produce. 3) ICT Solutions that reduce the work burden of JA workers.
Operational Support Solutions		1) Solutions that support accounting work and accounting software for agriculture by using ICT. 2) Solutions based on the meteorological data or past weather information to forecast harvesting time and volume, and to understand pests and diseases that may generate in advance. Also, credit control and income insurance solutions used at financial institutions and insurance companies.
Precision Farming	GPS Guidance System	A device that displays travel route of tractors and other machines by measuring their positioning using GPS.
	Autopilot	A device that automatically operate tractors and other machines according to the travel route shown by a GPS guidance system. (Not an unmanned driving system.)
	Vehicle-Type Robot Systems	A system that enable fully unmanned operation of farm machines, and that enable cooperative work of multiple farm machines such as tractors, rice planting machines, and combine harvesters by installing GPS receivers, robot controllers, and sensors in such machines.
Agricultural Robots		Equipment-type robots (tree-grafting robots), manipulator-type robots (harvesting robots, work-assisting robots (power assist suits).

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