

Smart Agriculture Market in Japan: Key Research Findings 2017

◆ 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, 2017
2. Research targets: Smart agriculture market players, agricultural corporations (paddy rice cultivation, agriculture & horticulture [vegetables, fruits, and flowers], dairy farming, and stockbreeding), related organizations, and the concerned government agencies
3. Research methodologies: Face-to-face interviews by the 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 higher agricultural productivity, lower costs, more secure food and safer labor environment.

<What is the Smart Agriculture Market?>

The smart agriculture market in this research consists 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 and other hardware, and drones for agriculture are not included.

◆ Key Findings

■ FY2016 Domestic Smart Agriculture Market Attained 10,420 Million Yen, 107.2% on Y-o-Y Basis, Led by Cultivation Support Solutions (Cloud Farming, Compound Environmental Control Equipment, and Production Support Solutions for Stockbreeding)

The domestic smart agriculture market in FY2016 has grown to 10,420 million yen, 107.2% of the size of the previous fiscal year. The details were as follows: Cultivation support solutions achieved 3,472 million yen (comprised of cloud farming 1,378 million yen, compound environmental control equipment 1,658 million yen, and production support solutions for stockbreeding 436 million yen); Sales support solutions 996 million yen; Operational support solutions 2,100 million yen; Precision farming 3,656 million yen (comprised of GPS guidance systems 1,035 million yen, and autopilot 2,620 million yen); and Agricultural Robots 196 million yen.

■ **Domestic Smart Agriculture Market Size Projected to Achieve 33,339 Million Yen by FY2023, Market Expected to Expand by Complete-Unmanned (Automated) Farm Machines and Cooperative Work through Multiple Farm Machines (Precision Farming)**

The domestic smart agriculture market is likely to be driven by cultivation support solutions, comprised of cloud farming, compound environmental control equipment, and production support solutions for stockbreeding, until around FY2017, after which sales support solutions and operational support solutions enabling work efficiency, as well as the systems (precision farming) for attaining complete-unmanned farm machine operations are foreseen to grow in FY2018 and beyond. Consequently, the market as a whole is expected to increase to 33,339 million yen by FY2023.

◆ **Report Format**

Published Report: “Smart Agriculture Market 2017”

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Price: 190,000 yen (The consumption tax shall additionally be charged for the sales in Japan.)

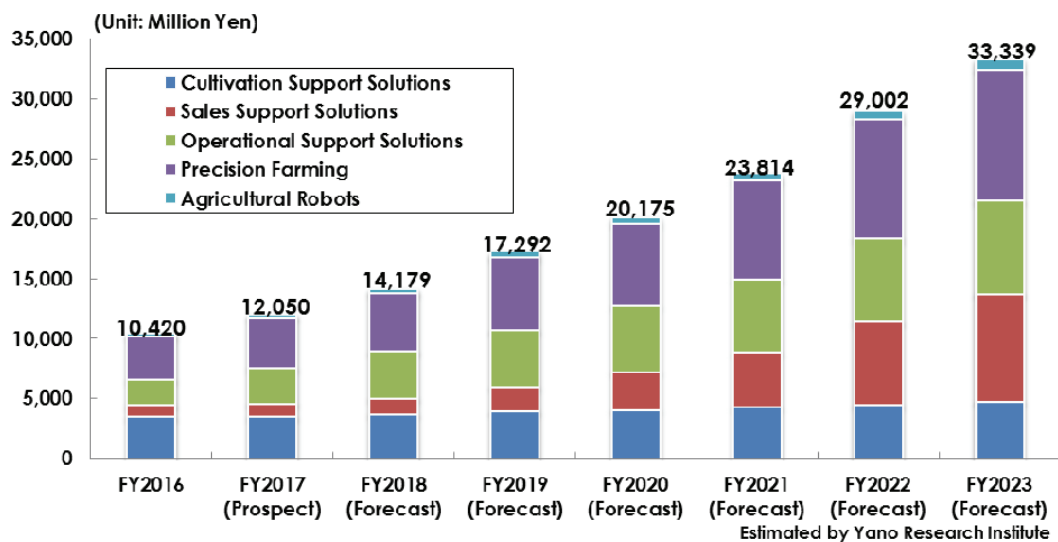
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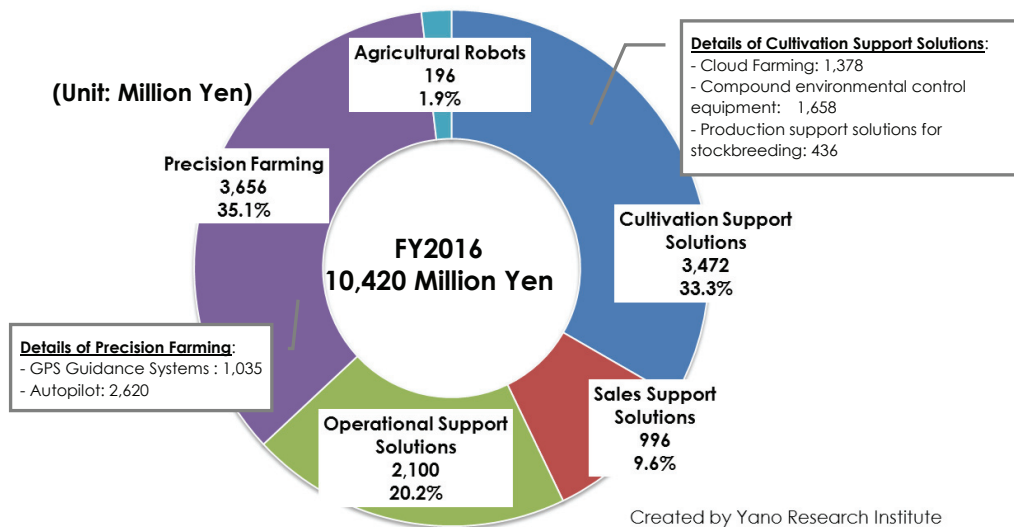
■ **Figure 1: Transition and Forecast of Domestic Smart Agriculture Market Size**



Notes:

1. The market size is based on the sales of the businesses.
2. POS systems for agriculture, farm machines and other hardware, and drones for agriculture are not included.

■ **Figure 2: Composition Ratio of FY2016 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, and etc. |
| | 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 connect producers, JA (National Federation of Agriculture Co-operative Associations), and food businesses to enable the products to be provided at fixed quantity, fixed time period, fixed quality, and fixed prices. 2) Solutions to connect producers and workers of JA (National Federation of Agriculture Co-operative Associations) to reduce the work burden by means of ICT. |
| 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. |
| Precision Farming | GPS Guidance Systems | A device that measures positioning and displays travel route of tractors by means of GPS. |
| | Autopilot | A device that automatically operate tractors 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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