

# Agriculture IoT Market with COVID-19 Impact Analysis by Hardware, Application (Precision Farming, Precision Forestry, Precision Livestock, Precision Aquaculture, Smart Greenhouse), Farm Size, Production Stage, and Geography - Global Forecast to 2026

https://marketpublishers.com/r/A062162DDEA4EN.html

Date: June 2021

Pages: 338

Price: US\$ 4,950.00 (Single User License)

ID: A062162DDEA4EN

# **Abstracts**

The agriculture IoT market is estimated to grow from USD 11.4 billion in 2021 to USD 18.1 billion by 2026 at a CAGR of 9.8% during 2021–2026. The growth of the agriculture IoT market is driven by factors such as increasing adoption of the Internet of Things (IoT) and artificial intelligence (AI) by farmers and growers, growing focus on livestock monitoring and disease detection, high demand for fresh produce, population growth, loss of arable land, surging adoption of aquaculture monitoring and feed optimization devices in developing countries, and strong government support for precision farming practices.

"Precision aquaculture application to register higher CAGR during the forecast period"

The agriculture IoT market for the precision aquaculture application segment is projected to register the higher CAGR during the forecast period, by application. Increasing demand for real-time tracking of fishing activity is the major reason behind the high growth of the agriculture IoT market in aquaculture farm monitoring applications. Additionally, increasing government support worldwide for freshwater aquaculture production, and growing investments in technological research and product innovations to further boost the demand for the market.

"Production planning stage is estimated to hold the largest share of the market during



## the forecast period"

The production planning stage segment of the agriculture IoT market is estimated to register the largest market share in 2026, by the farm production planning stage. Farmers are extensively using agriculture IoT hardware devices for monitoring and data analytics applications in order to formulate data-driven strategies to maximize profits. Data pertaining to production processes, crops, and equipment is collected with the help of sensors. This data is stored in the cloud, and data analytics solutions generate insights with such data. Farm owners can leverage these insights and make important decisions about their farms.

"Small farm segment to register higher CAGR during the forecast period"

The agriculture IoT market for small farm segment is projected to register the higher CAGR during the forecast period, by farm size. Small farms are expected to adopt automation and other advanced technologies at the highest rate in the coming years due to the reducing cost of farm automation equipment and advancements in technology that make it more feasible to deploy automation tools even on smaller farms to achieve high returns on investments.

"Automation and control systems for precision farming hardware segment is estimated to hold the largest share of the market during the forecast period"

The automation and control systems for the precision farming hardware segment of the agriculture IoT market is estimated to register the largest market share in 2026, by hardware type. The increasing demand for drones/unmanned aerial vehicles (UAVs) is a major reason behind the high growth of the market for automation and control systems. Also, the increasing adoption of automation and control devices such as GPS/GNSS, irrigation controllers, and guidance and steering systems is expected to drive the market for automation and control systems.

"APAC is projected to become the fastest geographical market between 2021 and 2026"

APAC is likely to be the fastest-growing agriculture IoT market during the forecast period. Agriculture IoT techniques are expected to be adopted at a high rate in APAC. This region consists of emerging countries such as India, China, and countries in South East Asia. Rapidly growing population, availability of arable land, and strong government support for farmers through subsidies in these regions are the major factors



driving the adoption of agriculture IoT technologies in APAC.

Breakdown of profiles of primary participants:

By Company: Tier 1 = 20%, Tier 2 = 45%, and Tier 3 = 35%

By Designation: C-level Executives = 35%, Directors = 25%, and Others (sales, marketing, and product managers, as well as members of various organizations) = 40%

By Region: North America = 45%, APAC = 25%, Europe=20%, and ROW=10%

Major players profiled in this report:

The agriculture IoT market is dominated by a few established players such as Deere & Company (US), Trimble Inc. (US), Raven Industries (US), DeLaval (a subsidiary of Tetra Laval International, S.A.) (Sweden), and AKVA group (Norway).

## Research coverage

This report offers detailed insights into the agriculture IoT market based on hardware type (precision farming hardware, precision livestock hardware, precision aquaculture hardware, precision forestry hardware, smart greenhouses hardware, and other hardware), farm size (large, mid-sized, and small farms), farm production planning stage (pre-production planning, production planning, and post-production planning stages), application (precision farming, precision livestock, precision aquaculture, precision forestry, smart greenhouses, and others) and region (North America, South America, Europe, Asia Pacific (APAC), and Rest of the World (RoW) which includes the Middle East and Africa (MEA)) and Africa.

The report also provides a comprehensive review of agriculture IoT market drivers, restraints, opportunities, and challenges in the market. The report also covers qualitative aspects in addition to the quantitative aspects of these markets.

Key Benefits of Buying the Report

The report will help the leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall market and the sub-



segments. This report will help stakeholders understand the competitive landscape and gain more insights to better position their businesses and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the agriculture IoT market and provides them information on key market drivers, restraints, challenges, and opportunities.



# **Contents**

#### 1 INTRODUCTION

- 1.1 STUDY OBJECTIVES
- 1.2 MARKET DEFINITION
- 1.2.1 INCLUSIONS AND EXCLUSIONS
- 1.3 STUDY SCOPE
  - 1.3.1 MARKETS COVERED
  - 1.3.2 GEOGRAPHIC SCOPE
  - 1.3.3 YEARS CONSIDERED
- 1.4 CURRENCY
- 1.5 LIMITATIONS
- 1.6 SUMMARY OF CHANGES
- 1.7 STAKEHOLDERS

#### 2 RESEARCH METHODOLOGY

#### 2.1 RESEARCH DATA

FIGURE 1 AGRICULTURE IOT MARKET: RESEARCH DESIGN

- 2.1.1 SECONDARY DATA
  - 2.1.1.1 List of major secondary sources
  - 2.1.1.2 Key data from secondary sources
- 2.1.2 PRIMARY DATA
  - 2.1.2.1 Primary interviews with experts
  - 2.1.2.2 List of key primary interview participants
  - 2.1.2.3 Breakdown of primaries
  - 2.1.2.4 Primary sources
- 2.1.3 SECONDARY AND PRIMARY RESEARCH
  - 2.1.3.1 Key industry insights
- 2.2 MARKET SIZE ESTIMATION
  - 2.2.1 BOTTOM-UP APPROACH
    - 2.2.1.1 Approach for capturing market size by bottom-up analysis
- FIGURE 2 BOTTOM-UP APPROACH
  - 2.2.2 TOP-DOWN APPROACH
  - 2.2.2.1 Approach for capturing market size by top-down analysis

FIGURE 3 TOP-DOWN APPROACH

2.2.3 AGRICULTURE IOT MARKET: DEMAND-SIDE ANALYSIS

FIGURE 4 DEMAND-SIDE MARKET SIZE ESTIMATION FOR AGRICULTURE IOT



MARKET (PRECISION AQUACULTURE VERTICAL)

FIGURE 5 DEMAND-SIDE MARKET SIZE ESTIMATION FOR AGRICULTURE IOT MARKET (PRECISION LIVESTOCK VERTICAL)

2.2.4 AGRICULTURE IOT MARKET: SUPPLY-SIDE ANALYSIS

FIGURE 6 SUPPLY-SIDE MARKET SIZE ESTIMATION FOR PRECISION AQUACULTURE

FIGURE 7 MARKET SIZE ESTIMATION: SUPPLY-SIDE APPROACH FOR PRECISION LIVESTOCK

2.2.5 GROWTH FORECAST ASSUMPTIONS

TABLE 1 REMOTE SENSING TECHNOLOGY PENETRATION IN MAJOR COUNTRIES

2.3 MARKET BREAKDOWN AND DATA TRIANGULATION

FIGURE 8 DATA TRIANGULATION

2.4 RESEARCH ASSUMPTIONS

#### **3 EXECUTIVE SUMMARY**

FIGURE 9 AGRICULTURE IOT MARKET: POST-COVID-19 SCENARIO ANALYSIS, 2017–2026 (USD MILLION)

- 3.1 REALISTIC SCENARIO (POST-COVID-19)
- 3.2 OPTIMISTIC SCENARIO (POST-COVID-19)
- 3.3 PESSIMISTIC SCENARIO (POST-COVID-19)

FIGURE 10 AUTOMATION & CONTROL SYSTEM SEGMENT TO GROW AT HIGHER CAGR IN AGRICULTURE IOT MARKET FOR PRECISION FARMING HARDWARE DURING FORECAST PERIOD

FIGURE 11 PRECISION FARMING APPLICATION TO HOLD LARGEST SHARE OF AGRICULTURE IOT MARKET DURING FORECAST PERIOD

FIGURE 12 AGRICULTURE IOT MARKET FOR SMALL FARMS TO GROW AT HIGHEST CAGR FROM 2021 TO 2026

FIGURE 13 PRODUCTION PLANNING SEGMENT TO ACCOUNT FOR LARGEST SIZE OF AGRICULTURE IOT MARKET FROM 2021 TO 2026

FIGURE 14 AGRICULTURE IOT MARKET IN SOUTH AMERICA TO GROW AT HIGHEST CAGR DURING FORECAST PERIOD

## **4 PREMIUM INSIGHTS**

4.1 ATTRACTIVE GROWTH OPPORTUNITIES IN GLOBAL AGRICULTURE IOT MARKET

FIGURE 15 INCREASING ADOPTION OF IOT TECHNOLOGY BY FARMERS AND



GROWERS IS DRIVING AGRICULTURE IOT MARKET GROWTH

- 4.2 AGRICULTURE IOT MARKET IN APAC, BY APPLICATION AND COUNTRY FIGURE 16 PRECISION FARMING AND AUSTRALIA HELD LARGEST SHARE OF AGRICULTURE IOT MARKET IN APAC IN 2020, BY APPLICATION AND COUNTRY, RESPECTIVELY
- 4.3 AGRICULTURE IOT MARKET, BY HARDWARE TYPE FIGURE 17 SENSORS TO HOLD LARGEST SIZE OF AGRICULTURE IOT MARKET FOR PRECISION AQUACULTURE DURING FORECAST PERIOD
- 4.4 AGRICULTURE IOT MARKET, BY APPLICATION
  FIGURE 18 PRECISION FARMING TO HOLD LARGEST SIZE OF AGRICULTURE
  IOT MARKET DURING FORECAST PERIOD
- 4.5 AGRICULTURE IOT MARKET, BY FARM SIZE FIGURE 19 AGRICULTURE IOT MARKET FOR SMALL FARMS TO GROW AT HIGHEST CAGR DURING FORECAST PERIOD
- 4.6 AGRICULTURE IOT MARKET, BY PRODUCTION PLANNING STAGE FIGURE 20 PRODUCTION STAGE TO HOLD LARGEST SIZE OF AGRICULTURE IOT MARKET DURING FORECAST PERIOD
- 4.7 REGIONAL ANALYSIS OF AGRICULTURE IOT MARKET FIGURE 21 AMERICAS TO BE LARGEST SHAREHOLDER IN AGRICULTURE IOT MARKET FROM 2021 TO 2026

#### **5 MARKET OVERVIEW**

- 5.1 INTRODUCTION
- 5.2 MARKET DYNAMICS

FIGURE 22 AGRICULTURE IOT MARKET: DRIVERS, RESTRAINTS, OPPORTUNITIES, AND CHALLENGES

- 5.2.1 DRIVERS
  - 5.2.1.1 Strong government support for promoting use of precision farming techniques
- 5.2.1.2 Increasing adoption of IoT and AI for various agricultural applications FIGURE 23 LIVESTOCK RFID TAGS INSTALLED BASE, 2018–2032 (MILLION UNITS)
- 5.2.1.3 Rise in number of industrial-scale indoor farms to meet increasing demand for food, as well as lack of arable land
- FIGURE 24 POPULATION VS. ARABLE LAND STATISTICS, 1950-2050
- 5.2.1.4 Surging adoption of aquaculture monitoring and feed optimization devices in developing countries
- 5.2.1.5 Increased adoption of VRT, remote sensing, and guidance technologies by farmers worldwide



- 5.2.1.6 Increasing focus on real-time monitoring and early disease detection FIGURE 25 IMPACT ANALYSIS OF DRIVERS ON AGRICULTURE IOT MARKET 5.2.2 RESTRAINTS
- 5.2.2.1 High upfront cost for deployment of modern agricultural equipment FIGURE 26 PRICE TREND OF AUTOMATED MILKING ROBOTS, (USD THOUSAND), 2017–2025
  - 5.2.2.2 Lack of technical knowledge and skills among farmers
  - 5.2.2.3 Fragmented agriculture industry
- FIGURE 27 IMPACT ANALYSIS OF RESTRAINTS ON AGRICULTURE IOT MARKET 5.2.3 OPPORTUNITIES
  - 5.2.3.1 Growing adoption of UAVs or drones in agricultural farms
- 5.2.3.2 Rising adoption of livestock monitoring solutions in developing countries TABLE 2 GLOBAL TECHNOLOGY ADOPTION
- FIGURE 28 GLOBAL MILKING ROBOTS INSTALLED BASE, 2017–2030 (UNITS)
  - 5.2.3.3 Growing popularity of poultry robots and BSC smart cameras
- 5.2.3.4 Increasing number of cage-based farms in developing regions such as India, China, and South East Asian countries
- FIGURE 29 SHARE OF MAJOR CAGE-BASED AQUACULTURE-PRODUCING COUNTRIES, 2018
- FIGURE 30 AQUACULTURE PRODUCTION EXPECTED TO SURPASS WILD-CAUGHT FISH PRODUCTION BY 2024
- 5.2.3.5 Introduction of agriculture-specific smartphone applications
  FIGURE 31 IMPACT ANALYSIS OF OPPORTUNITIES ON AGRICULTURE IOT
  MARKET
  - 5.2.4 CHALLENGES
- 5.2.4.1 Unavailability of simple and standardized data management and data aggregation tools
- 5.2.4.2 Emergence and re-emergence of diseases and environmental concerns
  FIGURE 32 IMPACT ANALYSIS OF CHALLENGES ON AGRICULTURE IOT MARKET
  5.3 TRENDS/DISRUPTIONS IMPACTING CUSTOMER'S BUSINESS
- 5.3.1 REVENUE SHIFT & NEW REVENUE POCKETS FOR AGRICULTURE IOT HARDWARE MANUFACTURERS
- FIGURE 33 REVENUE SHIFT FOR AGRICULTURE IOT MARKET

#### **6 INDUSTRY TRENDS**

6.1 INTRODUCTION

6.2 VALUE CHAIN ANALYSIS

FIGURE 34 VALUE CHAIN ANALYSIS: AGRICULTURE IOT MARKET



- 6.2.1 MAJOR STAKEHOLDERS IN AGRICULTURE IOT MARKET
- 6.2.2 SUPPLY CHAIN ANALYSIS

FIGURE 35 SUPPLY CHAIN: AGRICULTURE IOT MARKET

TABLE 3 AGRICULTURE IOT MARKET: SUPPLY CHAIN

- **6.3 TECHNOLOGY TRENDS** 
  - 6.3.1 INTERNET OF THINGS (IOT) SHAPING AGRICULTURE IOT MARKET
  - 6.3.2 DRONES/UAVS
- 6.3.3 AI, AR/VR, AND BLOCKCHAIN IN AQUACULTURE TO ACCELERATE MARKET GROWTH
- 6.3.4 USE OF FARM AUTOMATION SOLUTIONS, REMOTELY OPERATED VEHICLES, AND FEEDING ROBOTS TO REDUCE LABOR COSTS
- 6.3.5 ADOPTION OF ROBOTIC CAGES AND UNDERWATER DRONES IN AQUACULTURE FARMS
  - 6.3.6 AI AND BLOCKCHAIN IN LIVESTOCK FARMING
- FIGURE 36 BLOCKCHAIN AND AI IN PRECISION LIVESTOCK FARMING
  - 6.3.7 BODY CONDITIONING SCORING (BCS) SYSTEMS
- TABLE 4 BODY CONDITIONING SCORING PARAMETERS FOR DAIRY COWS
- TABLE 5 BODY CONDITIONING SCORING SYSTEMS: MAJOR ADVANTAGES
  - 6.3.8 TECHNOLOGY ADOPTION IN DAIRY FARMS
- FIGURE 37 MAJOR TECHNOLOGY TRENDS IN DAIRY FARMS
- 6.3.9 TECHNOLOGY ADOPTION IN POULTRY FARMS
- TABLE 6 MAJOR TECHNOLOGY TRENDS IN POULTRY FARMS
- 6.3.10 INTEGRATION OF TELEMATICS WITH FOREST MECHANIZATION IN PRECISION FORESTRY
- 6.3.11 ADVENT OF LIDAR-FITTED UAVS IN PRECISION FORESTRY
- 6.4 AVERAGE SELLING PRICE ANALYSIS
- TABLE 7 MILKING ROBOTS: AVERAGE SELLING PRICE ANALYSIS, 2019 VS 2025 FIGURE 38 MILKING ROBOTS: AVERAGE SELLING PRICE ANALYSIS, 2016–2025 TABLE 8 RFID TAGS & READERS: AVERAGE SELLING PRICE ANALYSIS, 2019 VS 2025
- 6.4.1 PRICING ANALYSIS: AVERAGE SELLING PRICE (ASP) TREND FOR SENSORS IN PRECISION AQUACULTURE
- FIGURE 39 AVERAGE SELLING PRICES OF PRECISION AQUACULTURE SENSORS (IN USD)
- TABLE 9 PRICING ANALYSIS FOR ROV SYSTEM COMPONENTS
- FIGURE 40 AVERAGE PRECISION FARMING DATA ANALYTICS SERVICE COST
- PER HECTARE FOR DIFFERENT FARM SIZES IN 2019
- 6.5 LIST OF KEY PATENTS AND INNOVATIONS IN AGRICULTURE IOT MARKET, 2015–2020



FIGURE 41 NUMBER OF PATENTS APPROVED FOR AQUACULTURE TECHNOLOGIES WORLDWIDE, 2015–2020

FIGURE 42 TOP 10 PATENT-HOLDING COMPANIES FOR SMART FARMING, 2015–2020

FIGURE 43 NUMBER OF PATENTS APPROVED FOR AGRICULTURE ANALYTICS WORLDWIDE, 2016–2020

FIGURE 44 REGION-WISE ANALYSIS OF PATENTS FILED BY PLAYERS IN PRECISION FARMING, 2015–2020

FIGURE 45 REGION-WISE ANALYSIS OF PATENTS FILED BY PLAYERS IN PRECISION LIVESTOCK, 2015–2020

6.6 TRADE DATA

TABLE 10 IMPORT DATA FOR VACUUM PUMPS AND FILTRATION SYSTEMS UNDER HS CODE: 8414, 2015–2019 (USD MILLION)

FIGURE 46 IMPORT VALUES OF VACUUM PUMPS AND FILTRATION SYSTEMS IN MAJOR COUNTRIES, 2015–2019

TABLE 11 EXPORT DATA OF VACUUM PUMPS AND FILTRATION SYSTEMS UNDER HS CODE: 8414, 2015–2019 (USD MILLION)

FIGURE 47 EXPORT VALUES OF VACUUM PUMPS AND FILTRATION SYSTEMS IN MAJOR COUNTRIES, 2015–2019

- 6.7 TARIFF AND REGULATORY LANDSCAPE
  - 6.7.1 CARBON POLICY TRENDS IN AGRICULTURE
  - 6.7.2 GROWING CLIMATE SOLUTIONS ACT
- 6.7.3 TARIFF AND REGULATIONS RELATED TO PRECISION FARMING AND SMART GREENHOUSES

TABLE 12 TARIFF REGULATIONS: PRECISION FARMING AND SMART GREENHOUSES

6.7.4 TARIFF AND REGULATIONS RELATED TO PRECISION AQUACULTURE TABLE 13 TARIFF REGULATIONS: PRECISION AQUACULTURE

6.8 CASE STUDIES: AGRICULTURE IOT MARKET

6.8.1 INTRODUCTION

6.8.2 OPEN BLUE

TABLE 14 INNOVASEA HELPS OPEN BLUE BECOME LARGEST OPEN-OCEAN FISH FARM IN WORLD

6.8.3 EARTH OCEAN FARMS

TABLE 15 INNOVASEA ENABLES EARTH OCEAN FARMS TO EXPAND PRODUCTION WITH RUGGED EVOLUTION PENS

6.8.4 ERKO SEAFOOD AS

TABLE 16 WITH AKVA GROUP'S EXPERTISE AND QUICK SERVICE, ERKO SEAFOOD AS FOUND REAL DEAL



6.8.5 ALLFLEX: LIVESTOCK MONITORING SOLUTION IMPROVING BREEDING RATE IN DAIRY COWS

TABLE 17 ALLFLEX SOLUTIONS FOR DAIRY COW HEALTH MONITORING 6.8.6 LATIUM: RANCHERS IN GHANA REMOTELY MONITORING THEIR LIVESTOCK

TABLE 18 LATIUM: LIVESTOCK MONITORING SOLUTION

6.8.7 ONNECTERRA: AI-BASED SOLUTION IMPROVING FARM PRODUCTIVITY TABLE 19 CONNECTERRA INTELLIGENT DAIRY FARM SOLUTIONS 6.8.8 WHITESIDES

TABLE 20 WHITESIDES USED AGWORLD SOFTWARE PLATFORM FOR RECORD-KEEPING AND CUSTOM FERTILIZER APPLICATION

6.8.9 ANNA BINNA FARMS

TABLE 21 ANNA BINNA FARMS USED AGWORLD SOFTWARE PLATFORM FOR FARM RECORD KEEPING SYSTEM AND FOR PRE-EMERGENT HERBICIDES 6.8.10 MURDOCH FAMILY

TABLE 22 WITH AGWORLD SOFTWARE PLATFORM, MURDOCH FAMILY DIGITIZED THEIR FARM MANAGEMENT FOR IMPROVED ACCURACY AND PROFITABILITY

6.8.11 LILLIPUT AG

TABLE 23 LILLIPUT AG AIMS TO IMPROVE PLANNING BY CAPTURING DATA WITH AGWORLD PLATFORM

6.9 PORTER'S FIVE FORCES ANALYSIS

FIGURE 48 AGRICULTURE IOT MARKET: PORTER'S FIVE FORCES ANALYSIS TABLE 24 AGRICULTURE IOT MARKET: PORTER'S FIVE FORCES ANALYSIS

- 6.9.1 THREAT OF NEW ENTRANTS
- 6.9.2 THREAT OF SUBSTITUTES
- 6.9.3 BARGAINING POWER OF SUPPLIERS
- 6.9.4 BARGAINING POWER OF BUYERS
- 6.9.5 INTENSITY OF COMPETITIVE RIVALRY
- 6.10 AGRICULTURE IOT MARKET ECOSYSTEM

FIGURE 49 AGRICULTURE IOT ECOSYSTEM

#### 7 AGRICULTURE IOT MARKET, BY HARDWARE TYPE

7.1 INTRODUCTION

7.2 PRECISION FARMING HARDWARE

TABLE 25 PRECISION FARMING HARDWARE MARKET, BY HARDWARE TYPE, 2017–2020 (USD MILLION)

TABLE 26 PRECISION FARMING HARDWARE MARKET, BY HARDWARE TYPE,



2021-2026 (USD MILLION)

7.2.1 AUTOMATION AND CONTROL SYSTEMS

FIGURE 50 DRONES/UAVS SEGMENT TO GROW AT HIGHEST CAGR DURING FORECAST PERIOD

TABLE 27 PRECISION FARMING HARDWARE MARKET FOR AUTOMATION & CONTROL SYSTEMS, BY DEVICE TYPE, 2017–2020 (USD MILLION)

TABLE 28 PRECISION FARMING HARDWARE MARKET FOR AUTOMATION & CONTROL SYSTEMS, BY DEVICE TYPE, 2021–2026 (USD MILLION)

TABLE 29 PRECISION FARMING HARDWARE MARKET FOR AUTOMATION & CONTROL SYSTEMS, BY REGION, 2017–2020 (USD MILLION)

TABLE 30 PRECISION FARMING HARDWARE MARKET FOR AUTOMATION & CONTROL SYSTEMS, BY REGION, 2021–2026 (USD MILLION)

- 7.2.1.1 Drones/UAVs
- 7.2.1.1.1 Drones are being widely implemented for identification of pests and weeds TABLE 31 PRECISION FARMING HARDWARE MARKET FOR DRONES/UAVS, BY REGION, 2017–2020 (USD MILLION)
- TABLE 32 PRECISION FARMING HARDWARE MARKET FOR DRONES/UAVS, BY REGION, 2021–2026 (USD MILLION)
  - 7.2.1.2 Irrigation controllers
- 7.2.1.2.1 Concerns pertaining to efficient use of water to propel demand for irrigation controllers

TABLE 33 PRECISION FARMING HARDWARE MARKET FOR IRRIGATION CONTROLLERS, BY REGION, 2017–2020 (USD MILLION)
TABLE 34 PRECISION FARMING HARDWARE MARKET FOR IRRIGATION CONTROLLER, BY REGION, 2021–2026 (USD MILLION)

- 7.2.1.3 Global Positioning System (GPS)/GNSS devices
- 7.2.1.3.1 GPS/GNSS devices are being extensively used for variable rate applications

TABLE 35 PRECISION FARMING HARDWARE MARKET FOR GPS/GNSS DEVICES, BY REGION, 2017–2020 (USD MILLION)

TABLE 36 PRECISION FARMING HARDWARE MARKET FOR GPS/GNSS DEVICES, BY REGION. 2021–2026 (USD MILLION)

- 7.2.1.4 Flow and application control devices
- 7.2.1.4.1 Flow and application control devices facilitate even application of agricultural chemicals

TABLE 37 PRECISION FARMING HARDWARE MARKET FOR FLOW & APPLICATION CONTROL DEVICES, BY REGION, 2017–2020 (USD MILLION) TABLE 38 PRECISION FARMING HARDWARE MARKET FOR FLOW & APPLICATION CONTROL DEVICES, BY REGION, 2021–2026 (USD MILLION)



- 7.2.1.5 Guidance and steering systems
- 7.2.1.5.1 Automated guidance and steering systems are used in tractors and agriculture robots

TABLE 39 PRECISION FARMING HARDWARE MARKET FOR GUIDANCE & STEERING SYSTEMS, BY REGION, 2017–2020 (USD MILLION)
TABLE 40 PRECISION FARMING HARDWARE MARKET FOR GUIDANCE AND STEERING SYSTEMS, BY REGION, 2021–2026 (USD MILLION)

- 7.2.1.6 Handheld mobile devices/handheld computers
- 7.2.1.6.1 Handheld mobile devices and computers can perform variety of functions and offer operational flexibility

TABLE 41 PRECISION FARMING HARDWARE MARKET FOR HANDHELD MOBILE DEVICES /HANDHELD COMPUTERS, BY REGION, 2017–2020 (USD MILLION)
TABLE 42 PRECISION FARMING HARDWARE MARKET FOR HANDHELD MOBILE DEVICES/HANDHELD COMPUTERS, BY REGION, 2021–2026 (USD MILLION)
7.2.1.7 Displays

7.2.1.7.1 Display devices provide user interface to operators and farmers TABLE 43 PRECISION FARMING HARDWARE MARKET FOR DISPLAYS, BY REGION, 2017–2020 (USD MILLION)

TABLE 44 PRECISION FARMING HARDWARE MARKET FOR DISPLAYS, BY REGION, 2021–2026 (USD MILLION)

7.2.1.8 Others

TABLE 45 PRECISION FARMING HARDWARE MARKET FOR OTHER AUTOMATION & CONTROL SYSTEMS, BY REGION, 2017–2020 (USD MILLION)
TABLE 46 PRECISION FARMING HARDWARE MARKET FOR OTHER AUTOMATION & CONTROL SYSTEMS, BY REGION, 2021–2026 (USD MILLION)

7.2.2 SENSING AND MONITORING DEVICES

FIGURE 51 YIELD MONITORS TO HOLD LARGEST SIZE OF SENSING & MONITORING DEVICES MARKET IN 2026

TABLE 47 PRECISION FARMING HARDWARE MARKET FOR SENSING & MONITORING DEVICES, BY DEVICE TYPE, 2017–2020 (USD MILLION) TABLE 48 PRECISION FARMING HARDWARE MARKET FOR SENSING & MONITORING DEVICES, BY DEVICE TYPE, 2021–2026 (USD MILLION) TABLE 49 PRECISION FARMING HARDWARE MARKET FOR SENSING & MONITORING DEVICES, BY REGION, 2017–2020 (USD MILLION) TABLE 50 PRECISION FARMING HARDWARE MARKET FOR SENSING & MONITORING DEVICES, BY REGION, 2021–2026 (USD MILLION)

7.2.2.1 Yield monitors

7.2.2.1.1 Yield monitors to continue to hold largest market share from 2021 to 2026 TABLE 51 PRECISION FARMING AGRICULTURE IOT MARKET FOR YIELD



MONITORS, BY REGION, 2017–2020 (USD MILLION)
TABLE 52 PRECISION FARMING AGRICULTURE IOT MARKET FOR YIELD
MONITORS, BY REGION, 2021–2026 (USD MILLION)

7.2.2.2 Soil sensors

7.2.2.2.1 Soil sensors provide real-time data on various soil properties TABLE 53 PRECISION FARMING AGRICULTURE IOT MARKET FOR SOIL SENSORS, BY REGION, 2017–2020 (USD MILLION)
TABLE 54 PRECISION FARMING AGRICULTURE IOT MARKET FOR SOIL SENSORS, BY REGION, 2021–2026 (USD MILLION)

7.2.2.3 Water sensors

7.2.2.3.1 Scarcity of water to increase demand for water sensors in coming years TABLE 55 PRECISION FARMING AGRICULTURE IOT MARKET FOR WATER SENSORS, BY REGION, 2017–2020 (USD MILLION)
TABLE 56 PRECISION FARMING AGRICULTURE IOT MARKET FOR WATER SENSORS, BY REGION, 2021–2026 (USD MILLION)

7.2.2.4 Climate sensors

7.2.2.4.1 Uncertainties related to weather and climate to propel demand for climate sensors

TABLE 57 PRECISION FARMING AGRICULTURE IOT MARKET FOR CLIMATE SENSORS, BY REGION, 2017–2020 (USD MILLION)

TABLE 58 PRECISION FARMING AGRICULTURE IOT MARKET FOR CLIMATE SENSORS, BY REGION, 2021–2026 (USD MILLION)

7.2.2.5 Others

TABLE 59 PRECISION FARMING AGRICULTURE IOT MARKET FOR OTHERS, BY REGION, 2017–2020 (USD MILLION)

TABLE 60 PRECISION FARMING AGRICULTURE IOT MARKET FOR OTHERS, BY REGION, 2021–2026 (USD MILLION)

7.3 PRECISION FORESTRY HARDWARE

TABLE 61 PRECISION FORESTRY HARDWARE MARKET, BY HARDWARE TYPE, 2017–2020 (USD MILLION)

FIGURE 52 UAVS/DRONES TO REGISTER HIGHEST CAGR IN PRECISION FORESTRY HARDWARE MARKET FROM 2021 TO 2026

TABLE 62 PRECISION FORESTRY HARDWARE MARKET, BY HARDWARE TYPE, 2021–2026 (USD MILLION)

7.3.1 HARVESTERS AND FORWARDERS

7.3.1.1 Harvesters and forwarders held largest market share in 2020

7.3.2 UAVS/DRONES

7.3.2.1 UAVs/drones to register highest CAGR during forecast period 7.3.3 GPS



7.3.3.1 GPS is predominantly used for fire prevention, boundary determination, and aerial spraying in precision forestry

7.3.4 CAMERAS

7.3.4.1 Video cameras are used in surveillance of forests for prevention of fires and illegal logging

7.3.5 RADIO-FREQUENCY IDENTIFICATION (RFID) AND SENSORS

7.3.5.1 RFID tags and sensors play a major role in prevention of illegal cutting and smuggling of precious trees

7.3.6 VARIABLE RATE CONTROLLERS

7.3.6.1 Increasing adoption of site-specific vegetation management expected to fuel demand for variable rate controllers

**7.3.7 OTHERS** 

7.4 LIVESTOCK MONITORING HARDWARE

TABLE 63 PRECISION LIVESTOCK MONITORING HARDWARE MARKET, BY HARDWARE TYPE, 2017–2020 (USD MILLION)

FIGURE 53 SENSORS TO GROW AT HIGHEST CAGR IN PRECISION LIVESTOCK FARMING AGRICULTURE IOT MARKET DURING FORECAST PERIOD

TABLE 64 LIVESTOCK MONITORING HARDWARE MARKET, BY HARDWARE TYPE, 2021–2026 (USD MILLION)

TABLE 65 LIVESTOCK MONITORING HARDWARE MARKET, BY REGION, 2017–2020 (USD MILLION)

TABLE 66 LIVESTOCK MONITORING HARDWARE MARKET, BY REGION, 2021–2026 (USD MILLION)

7.4.1 ROBOTIC HARDWARE

7.4.1.1 Increasing herd size of dairy farms and rising labor costs expected to propel growth of robotics hardware component

TABLE 67 LIVESTOCK MONITORING HARDWARE MARKET FOR ROBOTIC HARDWARE, BY REGION, 2017–2020 (USD MILLION)

TABLE 68 LIVESTOCK MONITORING HARDWARE MARKET FOR ROBOTIC HARDWARE, BY REGION, 2021–2026 (USD MILLION)

7.4.2 RFID TAGS AND READERS

7.4.2.1 Rising adoption of low-frequency RFID tags for identification and tracking of livestock to drive market growth

TABLE 69 LIVESTOCK MONITORING HARDWARE MARKET FOR RFID TAGS & READERS, BY REGION, 2017–2020 (USD MILLION)

TABLE 70 LIVESTOCK MONITORING HARDWARE MARKET FOR RFID TAGS & READERS, BY REGION, 2021–2026 (USD MILLION)

**7.4.3 SENSORS** 

7.4.3.1 Rising popularity of sensors among small farmers to drive market growth



TABLE 71 LIVESTOCK MONITORING MARKET FOR SENSORS, BY REGION, 2017–2020 (USD MILLION)

TABLE 72 LIVESTOCK MONITORING MARKET FOR SENSORS, BY REGION, 2021–2026 (USD MILLION)

7.4.4 CAMERAS

7.4.4.1 Growing awareness among ranchers for remote monitoring of livestock expected to propel adoption of cameras

TABLE 73 LIVESTOCK MONITORING MARKET FOR CAMERAS, BY REGION, 2017–2020 (USD MILLION)

TABLE 74 LIVESTOCK MONITORING MARKET FOR CAMERAS, BY REGION, 2021–2026 (USD MILLION)

7.4.5 GPS

7.4.5.1 Surging demand for livestock location tracking is major factor driving growth of GPS market

TABLE 75 LIVESTOCK MONITORING MARKET FOR GPS, BY REGION, 2017–2020 (USD MILLION)

TABLE 76 LIVESTOCK MONITORING MARKET FOR GPS, BY REGION, 2021–2026 (USD MILLION)

**7.4.6 OTHERS** 

TABLE 77 LIVESTOCK MONITORING MARKET FOR OTHERS, BY REGION, 2017–2020 (USD MILLION)

TABLE 78 LIVESTOCK MONITORING MARKET FOR OTHERS, BY REGION, 2021–2026 (USD MILLION)

7.5 PRECISION AQUACULTURE HARDWARE

TABLE 79 PRECISION AQUACULTURE HARDWARE MARKET, BY HARDWARE TYPE, 2017–2020 (USD MILLION)

FIGURE 54 SENSORS TO HOLD LARGEST SIZE OF PRECISION AQUACULTURE HARDWARE MARKET IN 2021

TABLE 80 PRECISION AQUACULTURE HARDWARE MARKET, BY HARDWARE TYPE, 2021–2026 (USD MILLION)

TABLE 81 PRECISION AQUACULTURE HARDWARE MARKET, BY SENSOR TYPE, 2017–2020 (USD MILLION)

TABLE 82 PRECISION AQUACULTURE HARDWARE MARKET, BY SENSOR TYPE, 2021–2026 (USD MILLION)

TABLE 83 PRECISION AQUACULTURE HARDWARE MARKET, BY SENSOR TYPE, 2017–2020 (MILLION UNITS)

TABLE 84 PRECISION AQUACULTURE HARDWARE MARKET, BY SENSOR TYPE, 2021–2026 (MILLION UNITS)

**7.5.1 SENSORS** 



- 7.5.1.1 Temperature and environmental sensors
- 7.5.1.1.1 Increasing demand for temperature and environmental sensors for monitoring fish pens and cages in widely varying sea conditions likely to foster market growth
  - 7.5.1.2 pH and dissolved oxygen sensors
- 7.5.1.2.1 Growing need to monitor dissolved oxygen content to boost deployment of pH and dissolved oxygen sensors in aquaculture farms
  - 7.5.1.3 Electrical Conductivity (EC) sensors
- 7.5.1.3.1 EC sensors to witness increased adoption in RAS and pond-based aquaculture farms
  - 7.5.1.4 Others
  - 7.5.2 CAMERA SYSTEMS
- 7.5.2.1 Rising adoption of smart HD and 4K camera systems in aquaculture farms to augment market growth
  - 7.5.3 CONTROL SYSTEMS
- 7.5.3.1 Adoption of various automated devices in aquaculture farming to raise demand for control systems in coming years
  - **7.5.4 OTHERS**
- 7.6 SMART GREENHOUSE HARDWARE

TABLE 85 SMART GREENHOUSE HARDWARE MARKET, BY HARDWARE TYPE, 2017–2020 (USD MILLION)

FIGURE 55 LED GROW LIGHTS TO GROW AT HIGHEST RATE FROM 2020 TO 2026

TABLE 86 SMART GREENHOUSE HARDWARE MARKET, BY HARDWARE TYPE, 2021–2026 (USD MILLION)

- 7.6.1 HVAC SYSTEMS
- 7.6.1.1 HVAC systems provide improved indoor environment in smart greenhouses 7.6.2 LED GROW LIGHTS
- 7.6.2.1 LED grow lights enhance operational efficiency and reduce energy consumption in smart greenhouses
  - 7.6.3 IRRIGATION SYSTEMS
- 7.6.3.1 Irrigation systems ensure optimum, timely watering of each zone in greenhouses
  - 7.6.4 MATERIAL HANDLING EQUIPMENT
  - 7.6.4.1 Material handling equipment help in reducing plant handling costs 7.6.5 VALVES AND PUMPS
- 7.6.5.1 Valves and pumps help in proper distribution of water in various zones of greenhouses
  - 7.6.6 CONTROL SYSTEMS



7.6.6.1 Control systems in smart greenhouses make operations easy 7.6.7 SENSORS AND CAMERAS

7.6.7.1 Sensors provide quantitative information to guide cultivators and enable automated decision-making related to crop cultivation

7.7 OTHER AGRICULTURE HARDWARE

# 8 AGRICULTURE IOT MARKET, BY FARM PRODUCTION PLANNING STAGE

8.1 INTRODUCTION

TABLE 87 AGRICULTURE IOT MARKET, BY FARM PRODUCTION PLANNING STAGE, 2017–2020 (USD MILLION)

FIGURE 56 PRODUCTION PLANNING STAGE TO HOLD LARGEST SIZE OF AGRICULTURE IOT MARKET DURING FORECAST PERIOD

TABLE 88 AGRICULTURE IOT MARKET, BY FARM PRODUCTION PLANNING STAGE, 2021–2026 (USD MILLION)

8.2 PRE-PRODUCTION PLANNING

8.2.1 IN PRE-PRODUCTION PLANNING, AGRICULTURE IOT HARDWARE DEVICES ARE USED TO IDENTIFY AREAS IN FARMS SUITABLE FOR CULTIVATION

TABLE 89 AGRICULTURE IOT MARKET FOR PRE-PRODUCTION PLANNING, BY REGION, 2017–2020 (USD MILLION)

FIGURE 57 AMERICAS TO HOLD LARGEST SIZE OF AGRICULTURE IOT MARKET FOR PRE-PRODUCTION PLANNING DURING FORECAST PERIOD

TABLE 90 AGRICULTURE IOT MARKET FOR PRE-PRODUCTION PLANNING, BY REGION, 2021–2026 (USD MILLION)

8.3 PRODUCTION PLANNING

8.3.1 IN PRODUCTION STAGE, AGRICULTURE IOT HARDWARE DEVICES ARE USED TO MONITOR CROPS AND PRODUCTION PROCESSES TO IMPROVE PRODUCTIVITY AND REDUCE COSTS

TABLE 91 AGRICULTURE IOT MARKET FOR PRODUCTION PLANNING, BY REGION, 2017–2020 (USD MILLION)

FIGURE 58 AGRICULTURE IOT MARKET FOR PRODUCTION PLANNING TO REGISTER HIGHEST CAGR IN APAC DURING FORECAST PERIOD TABLE 92 AGRICULTURE IOT MARKET PRODUCTION PLANNING, BY REGION, 2021–2026 (USD MILLION)

8.4 POST-PRODUCTION PLANNING

8.4.1 AGRICULTURE IOT HARDWARE DEVICES REDUCE MANUAL ERROR AND ASSIST FARM OWNERS IN STRATEGIC POST-PRODUCTION PLANNING TABLE 93 AGRICULTURE IOT MARKET FOR POST-PRODUCTION PLANNING, BY



REGION, 2017-2020 (USD MILLION)

FIGURE 59 AGRICULTURE IOT MARKET FOR POST-PRODUCTION PLANNING TO CAPTURE HIGHEST CAGR IN APAC DURING FORECAST PERIOD TABLE 94 AGRICULTURE IOT MARKET FOR POST-PRODUCTION PLANNING, BY REGION, 2021–2026 (USD MILLION)

## 9 AGRICULTURE IOT MARKET, BY FARM SIZE

#### 9.1 INTRODUCTION

TABLE 95 AGRICULTURE IOT MARKET, BY FARM SIZE, 2017–2020 (USD MILLION) FIGURE 60 MID-SIZED FARMS TO HOLD LARGEST SIZE OF AGRICULTURE IOT MARKET FROM 2021 TO 2026

TABLE 96 AGRICULTURE IOT MARKET, BY FARM SIZE, 2021–2026 (USD MILLION) TABLE 97 AGRICULTURE IOT MARKET FOR PRECISION FARMING, BY FARM SIZE, 2017–2020 (USD MILLION)

FIGURE 61 MID-SIZED FARMS TO HOLD LARGEST SIZE OF PRECISION FARMING AGRICULTURE IOT MARKET FROM 2021 TO 2026

TABLE 98 AGRICULTURE IOT MARKET FOR PRECISION FARMING, BY FARM SIZE, 2021–2026 (USD MILLION)

TABLE 99 AGRICULTURE IOT MARKET FOR LIVESTOCK MONITORING, BY FARM SIZE, 2017–2020 (USD MILLION)

FIGURE 62 LIVESTOCK MONITORING AGRICULTURE IOT MARKET FOR SMALL FARMS TO GROW AT HIGHEST CAGR FROM 2021 TO 2026

TABLE 100 AGRICULTURE IOT MARKET FOR LIVESTOCK MONITORING, BY FARM SIZE, 2021–2026 (USD MILLION)

TABLE 101 AGRICULTURE IOT MARKET FOR AQUACULTURE, BY FARM SIZE, 2017–2020 (USD MILLION)

FIGURE 63 PRECISION AQUACULTURE AGRICULTURE IOT MARKET FOR LARGE FARMS TO GROW AT HIGHEST CAGR FROM 2021 TO 2026

TABLE 102 AGRICULTURE IOT MARKET FOR AQUACULTURE, BY FARM SIZE, 2021–2026 (USD MILLION)

TABLE 103 AGRICULTURE IOT MARKET FOR SMART GREENHOUSES, BY FARM SIZE, 2017–2020 (USD MILLION)

FIGURE 64 SMART GREENHOUSE AGRICULTURE IOT MARKET FOR SMALL FARMS TO GROW AT HIGHEST CAGR FROM 2021 TO 2026

TABLE 104 AGRICULTURE IOT MARKET FOR SMART GREENHOUSES, BY FARM SIZE, 2021–2026 (USD MILLION)

TABLE 105 AGRICULTURE IOT MARKET FOR FORESTRY, BY FARM SIZE, 2017–2020 (USD MILLION)



FIGURE 65 PRECISION FORESTRY AGRICULTURE IOT MARKET FOR SMALL FARMS TO GROW AT HIGHEST CAGR FROM 2021 TO 2026

TABLE 106 AGRICULTURE IOT MARKET FOR FORESTRY, BY FARM SIZE, 2021–2026 (USD MILLION)

TABLE 107 AGRICULTURE IOT MARKET FOR OTHERS, BY FARM SIZE, 2017–2020 (USD MILLION)

TABLE 108 AGRICULTURE IOT MARKET FOR OTHERS, BY FARM SIZE, 2021–2026 (USD MILLION)

- 9.2 SMALL FARMS
- 9.2.1 SMALL FARMS TO WITNESS HIGHEST GROWTH RATE IN AGRICULTURE IOT MARKET DURING FORECAST PERIOD
- 9.3 MID-SIZED FARMS
- 9.3.1 MID-SIZED FARMS ARE CONSTANTLY ADOPTING MONITORING SOLUTIONS
- 9.4 LARGE FARMS
- 9.4.1 LARGE FARMS TO GROW SIGNIFICANTLY FROM 2021 TO 2026

## 10 AGRICULTURE IOT MARKET, BY APPLICATION

## 10.1 INTRODUCTION

FIGURE 66 PRECISION FARMING APPLICATIONS TO ACCOUNT FOR LARGEST SIZE OF AGRICULTURE IOT MARKET DURING FORECAST PERIOD TABLE 109 AGRICULTURE IOT MARKET, BY APPLICATION, 2017–2020 (USD MILLION)

TABLE 110 AGRICULTURE IOT MARKET, BY APPLICATION, 2021–2026 (USD MILLION)

10.2 PRECISION FARMING

TABLE 111 AGRICULTURE IOT MARKET FOR PRECISION FARMING, BY APPLICATION, 2017–2020 (USD MILLION)

TABLE 112 AGRICULTURE IOT MARKET FOR PRECISION FARMING, BY APPLICATION, 2021–2026 (USD MILLION)

TABLE 113 AGRICULTURE IOT MARKET FOR PRECISION FARMING, BY REGION, 2017–2020 (USD MILLION)

TABLE 114 AGRICULTURE IOT MARKET FOR PRECISION FARMING, BY REGION, 2021–2026 (USD MILLION)

- 10.2.1 YIELD MONITORING AND HARVESTING
- 10.2.1.1 Yield monitoring and harvesting facilitate allocation of resources according to specific needs of plants
  - 10.2.2 SOIL AND CROP MONITORING



- 10.2.2.1 Soil and crop monitoring enable farmers to collect data pertaining to soil moisture content, crop image analytics, and plant stress level and predict crop yield on per hectare basis
  - 10.2.3 FIELD MAPPING
    - 10.2.3.1 Filed mapping helps farmers attain objectives related to crop productivity
      - 10.2.3.1.1 Boundary mapping
    - 10.2.3.1.2 Drainage mapping
  - 10.2.4 VARIABLE RATE APPLICATION
    - 10.2.4.1 Variable rate application helps in optimizing crop inputs
  - 10.2.5 IRRIGATION AND WEATHER FORECASTING
- 10.2.5.1 Weather forecasting and real-time irrigation scheduling help farmers in undertaking precautionary measures for protecting farms from natural calamities
  - 10.2.6 INVENTORY MANAGEMENT
- 10.2.6.1 Inventory management includes keeping details of all inventory movements to ensure a proper mix of inventory
  - 10.2.7 FARM LABOR MANAGEMENT
  - 10.2.7.1 Farm labor management facilitates effective handling of labor
  - 10.2.8 EQUIPMENT MONITORING AND TELEMATICS
- 10.2.8.1 Agriculture IoT hardware devices/solutions can help to schedule various maintenance activities and automate multiple processes that incur costs
  - 10.2.9 OTHERS
- 10.3 PRECISION FORESTRY
- TABLE 115 AGRICULTURE IOT MARKET FOR PRECISION FORESTRY, BY APPLICATION, 2017–2020 (USD MILLION)
- TABLE 116 AGRICULTURE IOT MARKET FOR PRECISION FORESTRY, BY APPLICATION, 2021–2026 (USD MILLION)
  - 10.3.1 GENETICS AND NURSERIES
    - 10.3.1.1 UAVs/drones are increasingly being used for tree plantation
  - 10.3.2 SILVICULTURE AND FIRE MANAGEMENT
- 10.3.2.1 High adoption of wireless sensor network-based forest fire detection systems to propel market growth for silviculture and fire management applications
  - 10.3.3 HARVESTING MANAGEMENT
- 10.3.3.1 Harvesting management applications to hold largest market share during forecast period
  - 10.3.4 INVENTORY AND LOGISTICS MANAGEMENT
- 10.3.4.1 Inventory and logistics management enable quick reporting and data processing
- TABLE 117 AGRICULTURE IOT MARKET FOR PRECISION FORESTRY, BY REGION, 2017–2020 (USD MILLION)



TABLE 118 AGRICULTURE IOT MARKET FOR PRECISION FORESTRY, BY REGION, 2021–2026 (USD MILLION)

10.4 LIVESTOCK MONITORING

TABLE 119 AGRICULTURE IOT MARKET FOR LIVESTOCK MONITORING, BY APPLICATION, 2017–2020 (USD MILLION)

TABLE 120 AGRICULTURE IOT MARKET FOR LIVESTOCK MONITORING, BY APPLICATION, 2021–2026 (USD MILLION)

10.4.1 MILK HARVESTING

10.4.1.1 Rising demand for milking robots on dairy farms to propel growth of market for milk harvesting application

10.4.2 FEEDING MANAGEMENT

10.4.2.1 Increasing awareness among dairy farm owners for accurate diet formulation to fuel demand for IoT-based feeding management solutions

10.4.3 LIVESTOCK BEHAVIOR AND HEALTH MONITORING

10.4.3.1 Increasing awareness among ranchers and dairy farm owners about animal health to boost adoption of behavior and health monitoring applications

10.4.4 OTHERS

10.5 PRECISION AQUACULTURE

TABLE 121 AGRICULTURE IOT MARKET FOR PRECISION AQUACULTURE, BY APPLICATION, 2017–2020 (USD MILLION)

TABLE 122 AGRICULTURE IOT MARKET FOR PRECISION AQUACULTURE, BY APPLICATION, 2021–2026 (USD MILLION)

TABLE 123 AGRICULTURE IOT MARKET FOR PRECISION AQUACULTURE, BY FARM TYPE, 2017–2020 (USD MILLION)

TABLE 124 AGRICULTURE IOT MARKET FOR PRECISION AQUACULTURE, BY FARM TYPE, 2021–2026 (USD MILLION)

10.5.1 FEED MANAGEMENT

10.5.1.1 Feed management application held largest share of agriculture IoT market for precision aquaculture in 2020

10.5.2 FARM MONITORING, CONTROL, AND SURVEILLANCE

10.5.2.1 Growing focus on increasing farm productivity and early detection of diseases among aquatic species to propel adoption of IoT hardware devices

10.5.3 YIELD ANALYSIS AND MEASUREMENT

10.5.3.1 Increasing focus on higher yields and ROI to drive demand for IoT-based yield analysis and measurement tools

10.5.4 OTHERS

**10.6 SMART GREENHOUSE** 

TABLE 125 AGRICULTURE IOT MARKET FOR SMART GREENHOUSE, BY APPLICATION, 2017–2020 (USD MILLION)



TABLE 126 AGRICULTURE IOT MARKET FOR SMART GREENHOUSE, BY APPLICATION, 2021–2026 (USD MILLION)

10.6.1 HVAC MANAGEMENT

10.6.1.1 HVAC management helps to improve indoor environment in smart greenhouses

10.6.2 YIELD MONITORING AND HARVESTING

10.6.2.1 Agriculture IoT hardware devices help in crop health and yield monitoring for undertaking strategic decisions

10.6.3 WATER & FERTILIZER MANAGEMENT

10.6.3.1 IoT-based hardware devices facilitate controlled release of fertilizers 10.6.4 OTHERS

10.7 OTHER APPLICATIONS

TABLE 127 AGRICULTURE IOT MARKET FOR OTHER APPLICATIONS, BY APPLICATION, 2017–2020 (USD MILLION)

TABLE 128 AGRICULTURE IOT MARKET FOR OTHER APPLICATIONS, BY APPLICATION, 2021–2026 (USD MILLION)

TABLE 129 AGRICULTURE IOT MARKET FOR OTHER APPLICATIONS, BY REGION, 2017–2020 (USD MILLION)

TABLE 130 AGRICULTURE IOT MARKET FOR OTHER APPLICATIONS, BY REGION, 2021–2026 (USD MILLION)

## 11 AGRICULTURE IOT MARKET, BY GEOGRAPHY

#### 11.1 INTRODUCTION

FIGURE 67 AGRICULTURE IOT MARKET TO REGISTER SIGNIFICANTLY HIGH CAGR IN COUNTRIES IN APAC DURING FORECAST PERIOD

TABLE 131 AGRICULTURE IOT MARKET, BY REGION, 2017–2020 (USD MILLION) TABLE 132 AGRICULTURE IOT MARKET, BY REGION, 2021–2026 (USD MILLION) 11.2 AMERICAS

TABLE 133 AGRICULTURE IOT MARKET IN AMERICAS, BY APPLICATION, 2017–2020 (USD MILLION)

TABLE 134 AGRICULTURE IOT MARKET IN AMERICAS, BY APPLICATION, 2021–2026 (USD MILLION)

TABLE 135 AGRICULTURE IOT MARKET IN AMERICAS, BY PRODUCTION PLANNING STAGE, 2017–2020 (USD MILLION)

TABLE 136 AGRICULTURE IOT MARKET IN AMERICAS, BY PRODUCTION PLANNING STAGE, 2021–2026 (USD MILLION)

TABLE 137 AGRICULTURE IOT MARKET IN AMERICAS, BY REGION, 2017–2020 (USD MILLION)



TABLE 138 AGRICULTURE IOT MARKET IN AMERICAS, BY REGION, 2021–2026 (USD MILLION)

11.2.1 NORTH AMERICA

FIGURE 68 SNAPSHOT: AGRICULTURE IOT MARKET IN NORTH AMERICA TABLE 139 AGRICULTURE IOT MARKET IN NORTH AMERICA, BY APPLICATION, 2017–2020 (USD MILLION)

TABLE 140 AGRICULTURE IOT MARKET IN NORTH AMERICA, BY APPLICATION, 2021–2026 (USD MILLION)

TABLE 141 AGRICULTURE IOT MARKET IN NORTH AMERICA, BY PRODUCTION PLANNING STAGE, 2017–2020 (USD MILLION)

TABLE 142 AGRICULTURE IOT MARKET IN NORTH AMERICA, BY PRODUCTION PLANNING STAGE, 2021–2026 (USD MILLION)

TABLE 143 AGRICULTURE IOT MARKET IN NORTH AMERICA, BY COUNTRY, 2017–2020 (USD MILLION)

TABLE 144 AGRICULTURE IOT MARKET IN NORTH AMERICA, BY COUNTRY, 2021–2026 (USD MILLION)

11.2.1.1 US

11.2.1.1.1 Higher adoption of advanced technologies and presence of prominent market players are fostering growth of agriculture IoT market in US

11.2.1.2 Canada

11.2.1.2.1 Canada to register highest CAGR in agriculture IoT market in North America during forecast period

11.2.1.3 Mexico

11.2.1.3.1 Support from government and growing cattle industry in Mexico to support agriculture IoT market growth

11.2.2 SOUTH AMERICA

FIGURE 69 SNAPSHOT: AGRICULTURE IOT MARKET IN SOUTH AMERICA TABLE 145 AGRICULTURE IOT MARKET IN SOUTH AMERICA, BY APPLICATION, 2017–2020 (USD MILLION)

TABLE 146 AGRICULTURE IOT MARKET IN SOUTH AMERICA, BY APPLICATION, 2021–2026 (USD MILLION)

TABLE 147 AGRICULTURE IOT MARKET IN SOUTH AMERICA, BY PRODUCTION PLANNING STAGE, 2017–2020 (USD MILLION)

TABLE 148 AGRICULTURE IOT MARKET IN SOUTH AMERICA, BY PRODUCTION PLANNING STAGE, 2021–2026 (USD MILLION)

TABLE 149 AGRICULTURE IOT MARKET IN SOUTH AMERICA, BY COUNTRY, 2017–2020 (USD MILLION)

TABLE 150 AGRICULTURE IOT MARKET IN SOUTH AMERICA, BY COUNTRY, 2021–2026 (USD MILLION)



11.2.2.1 Brazil

11.2.2.1.1 Rapid adoption of precision farming technology

by commercial farmers to provide opportunities for market growth in Brazil

11.2.2.2 Argentina

11.2.2.2.1 Established agricultural machinery market in Argentina is conducive to growth of agriculture IoT market

11.2.2.3 Rest of South America

**11.3 EUROPE** 

FIGURE 70 SNAPSHOT: AGRICULTURE IOT MARKET IN EUROPE

TABLE 151 AGRICULTURE IOT MARKET IN EUROPE, BY APPLICATION,

2017-2020 (USD MILLION)

TABLE 152 AGRICULTURE IOT MARKET IN EUROPE, BY APPLICATION,

2021–2026 (USD MILLION)

TABLE 153 AGRICULTURE IOT MARKET IN EUROPE, BY PRODUCTION

PLANNING STAGE, 2017-2020 (USD MILLION)

TABLE 154 AGRICULTURE IOT MARKET IN EUROPE, BY PRODUCTION

PLANNING STAGE, 2021–2026 (USD MILLION)

TABLE 155 AGRICULTURE IOT MARKET IN EUROPE, BY COUNTRY, 2017–2020 (USD MILLION)

TABLE 156 AGRICULTURE IOT MARKET IN EUROPE, BY COUNTRY, 2021–2026 (USD MILLION)

**11.3.1 GERMANY** 

11.3.1.1 Germany to hold largest size of agriculture IoT market in Europe during forecast period

11.3.2 UK

11.3.2.1 Reduced technology cost in UK is leading to high adoption of agriculture IoT technologies

**11.3.3 FRANCE** 

11.3.3.1 Growing number of livestock farms to drive growth of agriculture IoT market in France

11.3.4 ITALY

11.3.4.1 Increasing popularity of precision farming techniques in Italy to propel growth of agriculture IoT market

11.3.5 NETHERLANDS

11.3.5.1 Agriculture IoT market in Netherlands expected to grow at highest CAGR in Europe during forecast period

11.3.6 REST OF EUROPE

11.4 APAC

FIGURE 71 SNAPSHOT: AGRICULTURE IOT MARKET IN APAC



TABLE 157 AGRICULTURE IOT MARKET IN APAC, BY APPLICATION, 2017–2020 (USD MILLION)

TABLE 158 AGRICULTURE IOT MARKET IN APAC, BY APPLICATION, 2021–2026 (USD MILLION)

TABLE 159 AGRICULTURE IOT MARKET IN APAC, BY PRODUCTION PLANNING STAGE, 2017–2020 (USD MILLION)

TABLE 160 AGRICULTURE IOT MARKET IN APAC, BY PRODUCTION PLANNING STAGE, 2021–2026 (USD MILLION)

TABLE 161 AGRICULTURE IOT MARKET IN APAC, BY COUNTRY, 2017–2020 (USD MILLION)

TABLE 162 AGRICULTURE IOT MARKET IN APAC, BY COUNTRY, 2021–2026 (USD MILLION)

11.4.1 CHINA

11.4.1.1 Population growth in China to boost adoption of agriculture IoT devices

11.4.2 JAPAN

11.4.2.1 Rise in urban farming practices to favor growth of agriculture IoT market

11.4.3 AUSTRALIA

11.4.3.1 Australia held largest size of agriculture IoT market in APAC in 2020

11.4.4 INDIA

11.4.4.1 India to be fastest-growing agriculture IoT market in APAC from 2021 to 2026

11.4.5 SOUTH KOREA

11.4.5.1 Significant investments in aquaculture industry to drive agriculture IoT market growth

11.4.6 REST OF APAC

11.5 REST OF THE WORLD

TABLE 163 AGRICULTURE IOT MARKET IN ROW, BY APPLICATION, 2017–2020 (USD MILLION)

TABLE 164 AGRICULTURE IOT MARKET IN ROW, BY APPLICATION, 2021–2026 (USD MILLION)

TABLE 165 AGRICULTURE IOT MARKET IN ROW, BY PRODUCTION PLANNING STAGE, 2017–2020 (USD MILLION)

TABLE 166 AGRICULTURE IOT MARKET IN ROW, BY PRODUCTION PLANNING STAGE, 2021–2026 (USD MILLION)

TABLE 167 AGRICULTURE IOT MARKET IN ROW, BY REGION, 2017–2020 (USD MILLION)

TABLE 168 AGRICULTURE IOT MARKET IN ROW, BY REGION, 2021–2026 (USD



## MILLION)

11.5.1 AFRICA

11.5.1.1 Livestock monitoring application in Africa expected to grow at significant rate 11.5.2 MIDDLE EAST

11.5.2.1 Focus on water conservation is supporting adoption of agriculture IoT technologies in Middle East

#### 12 COMPETITIVE LANDSCAPE

12.1 OVERVIEW

FIGURE 72 PRODUCT LAUNCHES: KEY STRATEGIES ADOPTED BY MAJOR PLAYERS FROM 2017 TO 2020

12.2 MARKET SHARE ANALYSIS

TABLE 169 AGRICULTURE IOT MARKET: DEGREE OF COMPETITION (2020)

12.3 REVENUE ANALYSIS

FIGURE 73 HISTORICAL REVENUE ANALYSIS (PRECISION FARMING SEGMENT) OF MAJOR COMPANIES OFFERING AGRICULTURE IOT DEVICES & EQUIPMENT, 2015–2019 (USD MILLION)

FIGURE 74 HISTORICAL REVENUE ANALYSIS (AQUACULTURE SEGMENT) OF MAJOR COMPANIES OFFERING AGRICULTURE IOT DEVICES & EQUIPMENT, 2015–2019 (USD MILLION)

12.4 COMPANY EVALUATION MATRIX

12.4.1 STAR

12.4.2 PERVASIVE

12.4.3 EMERGING LEADER

12.4.4 PARTICIPANT

FIGURE 75 AGRICULTURE IOT MARKET (GLOBAL) COMPETITIVE LEADERSHIP MAPPING, 2020

12.5 SME EVALUATION MATRIX FOR AGRICULTURE IOT MARKET, 2020

12.5.1 PROGRESSIVE COMPANY

12.5.2 RESPONSIVE COMPANY

12.5.3 DYNAMIC COMPANY

12.5.4 STARTING BLOCK

FIGURE 76 AGRICULTURE IOT MARKET (GLOBAL) COMPETITIVE LEADERSHIP MAPPING, SME/START-UP ECOSYSTEM, 2020

**TABLE 170 COMPANY FOOTPRINT** 

TABLE 171 COMPANY APPLICATION FOOTPRINT

TABLE 172 COMPANY PRODUCT FOOTPRINT

TABLE 173 COMPANY REGION FOOTPRINT



12.6 COMPETITIVE SITUATION AND TRENDS

12.6.1 PRODUCT LAUNCHES AND DEVELOPMENTS

TABLE 174 PRODUCT LAUNCHES & DEVELOPMENTS, 2017-2020

12.6.2 DEALS

TABLE 175 AGRICULTURE IOT MARKET: DEALS, JANUARY 2017-DECEMBER 2020

## **13 COMPANY PROFILES**

(Business Overview, Products/solutions/services Offered, Recent Developments, and MnM View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive Threats))\*

13.1 INTRODUCTION

13.2 KEY PLAYERS

13.2.1 DEERE & COMPANY

TABLE 176 DEERE & COMPANY: COMPANY OVERVIEW FIGURE 77 DEERE & COMPANY: COMPANY SNAPSHOT TABLE 177 DEERE & COMPANY: PRODUCT LAUNCHES

TABLE 178 DEERE & COMPANY: DEALS

13.2.2 TRIMBLE INC.

TABLE 179 TRIMBLE INC.: COMPANY OVERVIEW FIGURE 78 TRIMBLE INC.: COMPANY SNAPSHOT

TABLE 180 TRIMBLE: PRODUCT LAUNCHES

TABLE 181 TRIMBLE: DEALS 13.2.3 RAVEN INDUSTRIES

TABLE 182 RAVEN INDUSTRIES: COMPANY OVERVIEW FIGURE 79 RAVEN INDUSTRIES: COMPANY SNAPSHOT TABLE 183 RAVEN INDUSTRIES: PRODUCT LAUNCHES

TABLE 184 RAVEN INDUSTRIES: DEALS TABLE 185 RAVEN INDUSTRIES: OTHERS

13.2.4 AKVA GROUP

TABLE 186 AKVA GROUP: COMPANY OVERVIEW FIGURE 80 AKVA GROUP: COMPANY SNAPSHOT TABLE 187 AKVA GROUP: PRODUCT LAUNCHES

TABLE 188 AKVA GROUP: DEALS

13.2.5 DELAVAL (SUBSIDIARY OF TETRA LAVAL INTERNATIONAL, S.A.)

TABLE 189 DELAVAL: COMPANY OVERVIEW FIGURE 81 DELAVAL: COMPANY SNAPSHOT TABLE 190 DELAVAL: PRODUCT LAUNCHES



TABLE 191 DELAVAL : DEALS

13.2.6 AGJUNCTION

TABLE 192 AGJUNCTION: COMPANY OVERVIEW FIGURE 82 AGJUNCTION: COMPANY SNAPSHOT TABLE 193 AGJUNCTION: PRODUCT LAUNCHES

TABLE 194 AGJUNCTION: DEALS

13.2.7 TOPCON POSITIONING SYSTEMS

TABLE 195 TOPCON POSITIONING SYSTEMS: COMPANY OVERVIEW

TABLE 196 TOPCON: PRODUCT LAUNCHES

TABLE 197 TOPCON: DEALS

13.2.8 ALLFLEX (SUBSIDIARY OF MERCK & CO., INC.)

TABLE 198 ALLFLEX (SUBSIDIARY OF MERCK & CO., INC.): COMPANY

**OVERVIEW** 

TABLE 199 ALLFLEX: PRODUCT LAUNCHES

TABLE 200 ALLFLEX: DEALS TABLE 201 ALLFLEX: OTHERS

13.2.9 PONSSE

TABLE 202 PONSSE: COMPANY OVERVIEW FIGURE 83 PONSSE: COMPANY SNAPSHOT TABLE 203 PONSSE: PRODUCT LAUNCHES

TABLE 204 PONSSE: DEALS
TABLE 205 PONSSE: OTHERS
13.2.10 KOMATSU FOREST

TABLE 206 KOMATSU FOREST: COMPANY OVERVIEW TABLE 207 KOMATSU FOREST: PRODUCT LAUNCHES

TABLE 208 KOMATSU FOREST: DEALS TABLE 209 KOMATSU FOREST: OTHERS

13.2.11 INNOVASEA SYSTEMS

TABLE 210 INNOVASEA SYSTEMS: COMPANY OVERVIEW TABLE 211 INNOVASEA SYSTEMS: PRODUCT LAUNCHES

TABLE 212 INNOVASEA SYSTEMS: DEALS TABLE 213 INNOVASEA SYSTEMS: OTHERS 13.2.12 STEINSVIK (PART OF SCALE AQ)

TABLE 214 STEINSVIK (SCALEAQ): COMPANY OVERVIEW

TABLE 215 STEINSVIK: PRODUCT LAUNCHES

TABLE 216 STEINSVIK: DEALS 13.3 OTHER KEY PLAYERS

13.3.1 TEEJET TECHNOLOGIES

TABLE 217 TEEJET TECHNOLOGIES: COMPANY OVERVIEW



13.3.2 AG LEADER TECHNOLOGY

TABLE 218 AG LEADER TECHNOLOGY: COMPANY OVERVIEW

**13.3.3 AFIMILK** 

TABLE 219 AFIMILK: COMPANY OVERVIEW

13.3.4 DICKEY-JOHN

TABLE 220 DICKEY-JOHN: COMPANY OVERVIEW

13.3.5 DJI

TABLE 221 DJI: COMPANY OVERVIEW

**13.3.6 AGEAGLE** 

TABLE 222 AGEAGLE: COMPANY OVERVIEW

13.3.7 PRECISIONHAWK

TABLE 223 PRECISIONHAWK: COMPANY OVERVIEW

13.3.8 HEXAGON AGRICULTURE (SUBSIDIARY OF HEXAGON GROUP)

TABLE 224 HEXAGON AGRICULTURE: COMPANY OVERVIEW

13.3.9 FARMERS EDGE

TABLE 225 FARMERS EDGE: COMPANY OVERVIEW

13.3.10 TIGERCAT

TABLE 226 TIGERCAT: COMPANY OVERVIEW

13.3.11 THE CLIMATE CORPORATION

TABLE 227 THE CLIMATE CORPORATION: COMPANY OVERVIEW

13.3.12 DESCARTES LABS

TABLE 228 DESCARTES LABS: COMPANY OVERVIEW

13.3.13 CROPX

TABLE 229 CROPX: COMPANY OVERVIEW

13.3.14 ERUVAKA TECHNOLOGIES

TABLE 230 ERUVAKA TECHNOLOGIES: COMPANY OVERVIEW

13.3.15 EC2CE

TABLE 231 EC2CE: COMPANY OVERVIEW

13.3.16 GAMAYA

TABLE 232 GAMAYA: COMPANY OVERVIEW

**13.3.17 AKUAKARE** 

TABLE 233 AKUAKARE: COMPANY OVERVIEW

13.3.18 IN-SITU, INC.

TABLE 234 IN-SITU: COMPANY OVERVIEW

\*Details on Business Overview, Products/solutions/services Offered, Recent Developments, and MnM View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive Threats) might not be captured in case of unlisted companies.



## **14 APPENDIX**

- 14.1 INSIGHTS FROM INDUSTRY EXPERTS
- 14.2 DISCUSSION GUIDE
- 14.3 KNOWLEDGE STORE: MARKETSANDMARKETS' SUBSCRIPTION PORTAL
- 14.4 AVAILABLE CUSTOMIZATIONS
- 14.5 RELATED REPORTS
- 14.6 AUTHOR DETAILS



## I would like to order

Product name: Agriculture IoT Market with COVID-19 Impact Analysis by Hardware, Application

(Precision Farming, Precision Forestry, Precision Livestock, Precision Aquaculture, Smart Greenhouse), Farm Size, Production Stage, and Geography - Global Forecast to 2026

Product link: <a href="https://marketpublishers.com/r/A062162DDEA4EN.html">https://marketpublishers.com/r/A062162DDEA4EN.html</a>

Price: US\$ 4,950.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer

Service:

info@marketpublishers.com

# **Payment**

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <a href="https://marketpublishers.com/r/A062162DDEA4EN.html">https://marketpublishers.com/r/A062162DDEA4EN.html</a>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:	
Last name:	
Email:	
Company:	
Address:	
City:	
Zip code:	
Country:	
Tel:	
Fax:	
Your message:	
	**All fields are required
	Custumer signature

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <a href="https://marketpublishers.com/docs/terms.html">https://marketpublishers.com/docs/terms.html</a>

To place an order via fax simply print this form, fill in the information below



and fax the completed form to +44 20 7900 3970