

The Future of Agriculture

How innovative technologies are transforming farming practices and guiding farmers toward greater sustainability and resilience

Created by: Frost & Sullivan and Hitachi Australia

US\$ **5.15**
BILLION

Global Precision/Smart
Agriculture market
revenue in 2017

UP TO **75%**

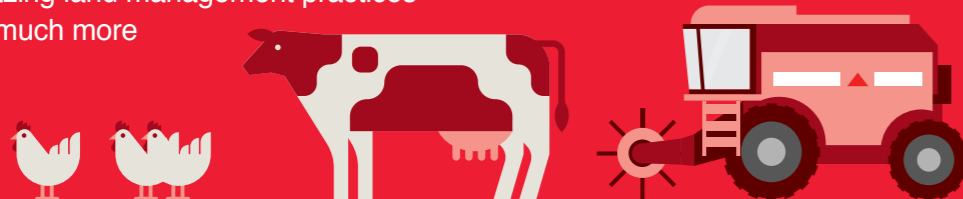
reduction in machinery
and input costs
achievable with the use
of Precision Agriculture

Hitachi's Smart Agriculture Solutions

Hitachi Process Intelligence (HPI) is a solution that combines advanced process and data analytics to support IoT-driven decisions to accelerate business performance across the agriculture and livestock industry for real-time insights on:

- Local weather conditions
- Biomass levels, soil moisture, fertiliser usage, fence conditions
- Animal health and welfare
- Grazing land management practices and much more

Hitachi's solutions for precision agriculture equipment – guided by Japan's Quasi Zenith Satellite System (QZSS) – are improving accuracy and productivity in broad acre crops such as rice and sugar cane



5 Key Challenges Facing the Agriculture Sector

- 1 9.6 billion estimated world population by 2050 driving increase in per capita food consumption*
- 2 Economic development leading to decline in arable land
- 3 Climate change and food safety risks are threats to food security
- 4 Productivity losses and supply chain inefficiencies
- 5 Growing feedstock demand from the bioenergy industry

* United Nations

Future of Farming: Precision Agriculture, Cloud and AI

UAV mapping

- Installation and systems integration
- Yield monitor calibration

Next-Gen Farming

- Cloud computing
- Machine-to-machine (M2M) communication
- Artificial intelligence

Communication Networks

- GNSS* (e.g., satellite-related solutions such as tractor guidance, auto-steering, and yield monitoring)
- Cellular
- LPWAN*

IoT & Robotics

- Precision agriculture equipment
- Crop cultivation technologies
- Sensors and sensor fusion
- Auto-steering/automation technologies

Predictive Analytics & Farm Management Software

- Farm operations management solutions
- Predictive analytics
- Controlled traffic farming software

Note: GNSS – Global Navigation Satellite System; LPWAN – Low-power Wide Area Network

Digital Disruption: 12 Emerging Use Cases in Agriculture

- Soil and Water Monitoring
- Grain Silo Monitoring
- Hothouse (Greenhouse) Condition Monitoring
- Cattle Tracking
- Nutrient Sensing Technologies
- Weather and Climate Sensors
- Aeroponics
- Hydroponics/Aquaponics
- Variable Data Technologies
- Autonomous Farming
- Agriculture Drones
- Robotics