



Thought Leadership: Precision Agriculture



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Precision Agriculture and Digital Farming



Market Intelligence Report 2016

The global precision farming market is estimated to grow at a Compound Annual Growth Rate (CAGR) of 13% from 2015 to 2022 to reach over US\$6.43 billion by 2022.



Smart farming technologies, including the ability to use data collected from satellites and drones, will be essential technologies for farmers to stay competitive. One of the biggest challenges to agriculture today is to transfer precision agriculture (PA) technologies to developing countries.

Farmers, especially in developing countries, are becoming increasingly aware of the benefits (and, indeed, the growing necessity) of utilising tools that help them manage their resources more efficiently.

PA provides the tools and data for deep analysis of farming practices on individual farms and in regions and countries. Using information about the soil, water and land features to differentiate between the production potential of units as small as 1m² allows farmers to optimise production inputs per 1m² of land.

Definitions of PA vary from only referring to production to more holistic smart farming solutions, including ICTs such as sensors and drones.

Data is the key ingredient for the farming sector to become more productive and sustainable and remain competitive in a global environment. Huge amounts of data are already available in agriculture. Digital Farming means to go beyond the mere presence and availability of data and create actionable intelligence and meaningful added value from such data.

Key take away:

- **South African farmers are starting to collect a range of data about their work from various data sources, which creates new possibilities for data coordination and analysis.**

Agriculture and the Internet of Things

Optimising production through PA is well understood by many sophisticated producers. The impact that the Internet of Things (IoT) will have on the collation and interpretation of data is less so.

The Internet of Things (IoT) is growing at a significant pace as consumers, businesses and governments are recognising the benefits of connecting inert devices to the internet.

Business Insider (BI) estimates that the number of devices connected to the internet will increase from 10 billion in 2015 to 34 billion by 2020.

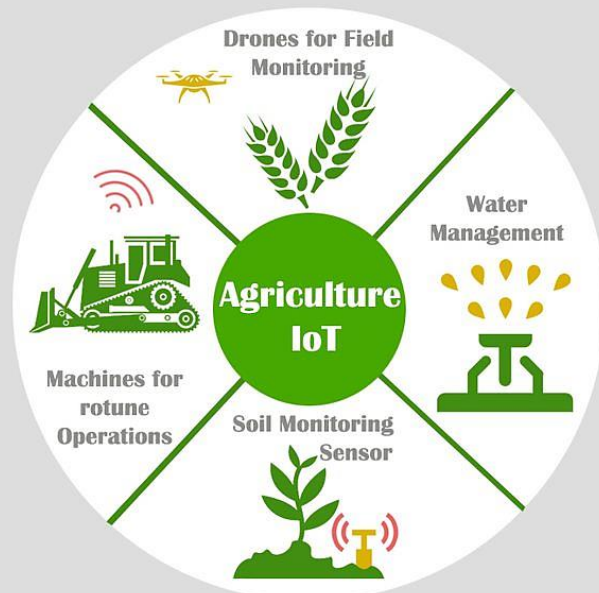
BI's report foresees that the global market will witness an investment of nearly \$6 trillion in IoT solutions over the next five years and investments made in the next five years are projected to generate \$13 trillion in revenue by 2025.

Businesses are going to be the top adopter of IoT, leaving governments and consumers behind in the race, and will spend \$3 billion in the IoT ecosystem and deploy 11.2 billion devices by 2020.

Businesses are eagerly gearing up to invest in IoT since they can leverage IoT solutions to achieve essential metrics such as:

- reduced operating costs
- increased productivity
- expansion to new markets
- development of new products.

How IoT technology is benefiting today's modern farming industry



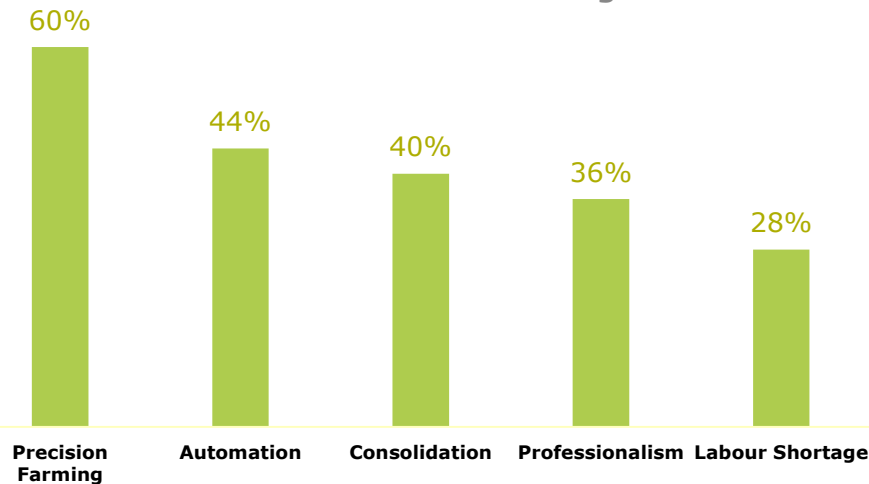
Key take aways:

- **The smart agriculture market is expected to reach \$18.45 Billion in 2021, at a CAGR of 13.8%.**
- **BI estimates that 75 million IoT devices will be shipped for agricultural uses in 2020, at a CAGR of 20%.**

Precision Agriculture: the most influential future trend in agriculture

Rising demand for bigger yields and higher environmental protection has put pressure on the agricultural sector to “produce more with less”.

Most Influential Trends Affecting Farming Practises and Structures through 2030



In Europe, PA and the integration of digital technology are set to become the most influential trends in the sector, as a growing number of farmers start to adopt digital technologies to run their businesses.

According to the machinery industry in Europe, **70 to 80% of new farm equipment sold now has some form of PA component** technology inside.

However, the **uptake of PA** among producers in Europe is still **very low**. For instance, only 35% of new fertiliser spreaders are sold with a precision weighing instrument included, essential for adjusting quantity and direction of spread.

These technologies are still **expensive** to most farmers, especially for the smaller ones. Europe is also facing an **ageing workforce** on farms, and the introduction of new technologies could result in a “two-speed” EU agriculture.

In many EU rural areas, **internet access is limited** and this holds back the use of big data.

Key take aways:

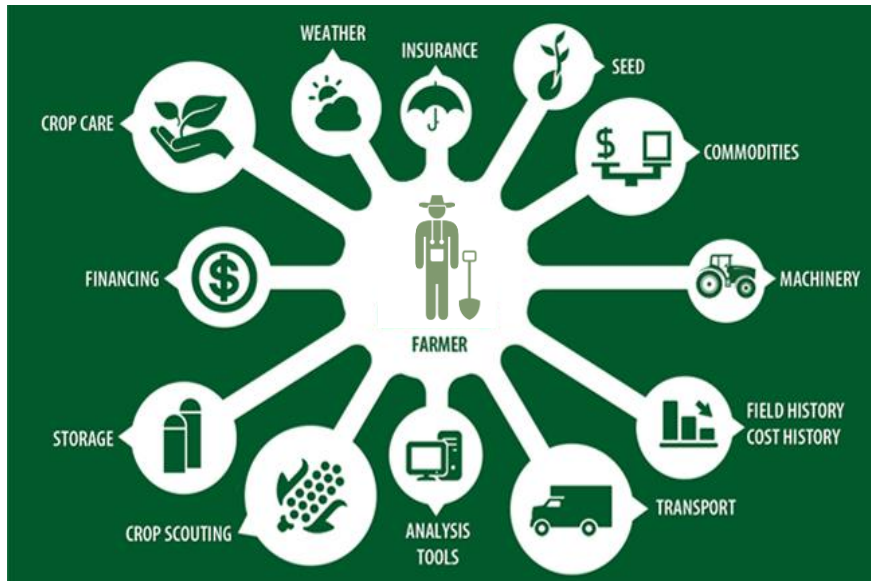
- **The developing world must realise the importance of also developing the data infrastructure needed to support the new technologies that will drive agriculture in future.**
- **The high cost of some of the PA components will require new delivery and ownership models.**

Thought Leadership Series: Precision Agriculture June 2018



Production focus and fragmentation by PA role-players creates an opportunity for a virtually integrated business model

Producer Decisions influenced by PA



PA services in South Africa typically focusses on the **production side** and almost all **agribusinesses and large input providers** offer PA services to producers (seed, CPP, fertiliser and machinery).

The second layer above production, namely holistic farming, record keeping, decision making and financial/production/marketing integration is often still left to the individual farmer to navigate in a sea of data. A holistic farm management program that interfaces with all the data would prove a very valuable tool to producers and product and service providers.

Services and systems are becoming more integrated but most are still fragmented. Recent developments indicate a convergence to holistic data gathering and processing to service clients:



Laeveld Agrochem and Agri Technovation developed MY FARMWEB™ - a digital platform to reconcile big data in agriculture

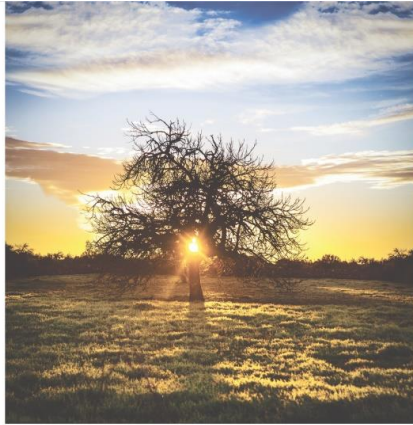


DuPont buys Granular Ag Software Company for USD300m to accelerate their digital ag strategy and help farmers operate more profitable business



Omnia Nutrology entered into a strategic partnership with DigiAg to provide a technical farm management App

What is the opportunity?



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